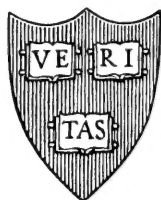


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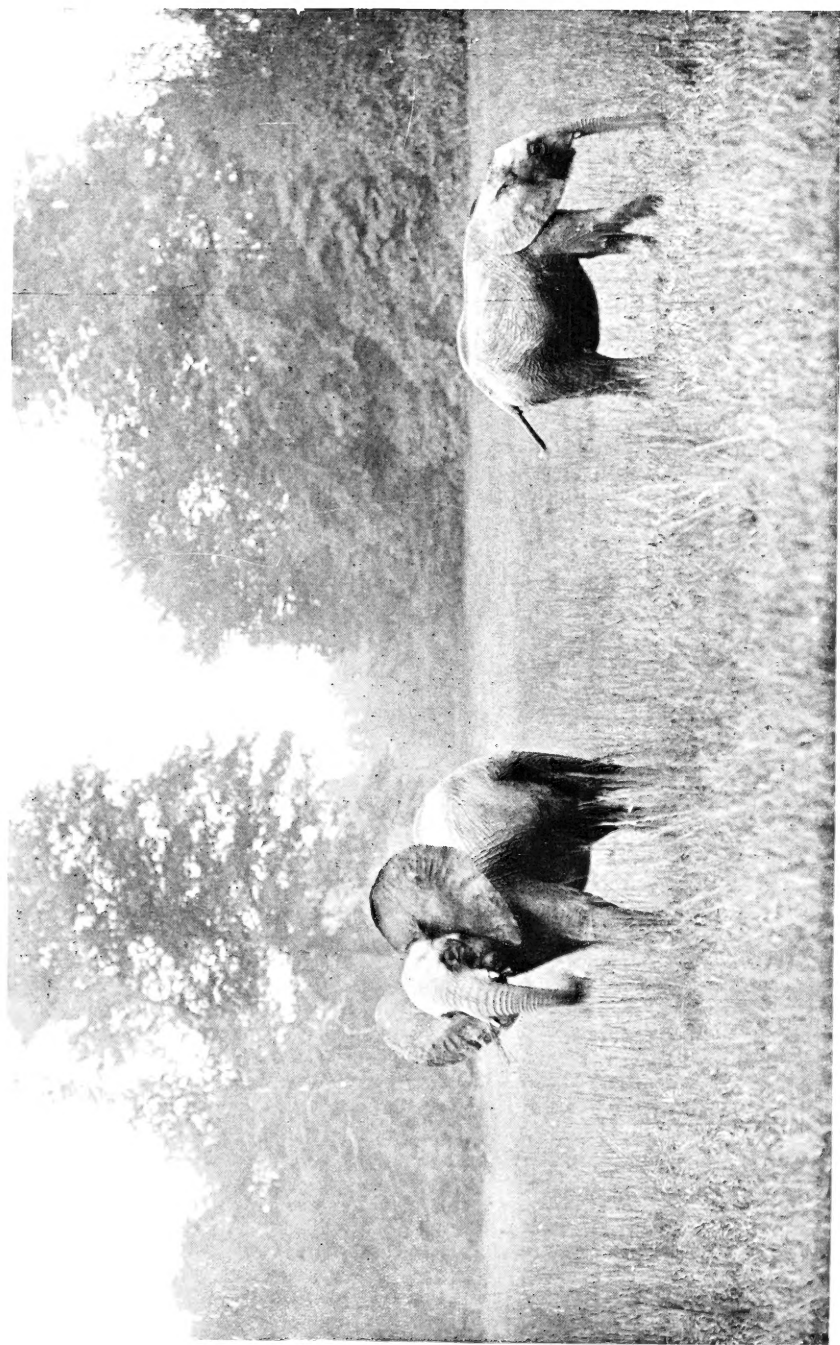
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A PAIR OF YOUNG AFRICAN ELEPHANTS  
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 RASMUS, W.,  
 RASMUS, W. T.,  
 RATHBORNE, RICHARD C.,  
 RAUCH, WILLIAM,  
 READ, WILLIAM A.,  
 REDMOND, MISS E.,  
 REDMOND, MRS. HENRY S.,  
 REID, JOHN,  
 REID, MRS. OGDEN MILLS,  
 REIMER, OTTO EUGENE,  
 REINCKE, E. A.,  
 REINHART, GEORGE N.,  
 REMSEN, CHARLES,  
 REYNOLDS, E. B.,  
 RHETT, MISS FLORANCE,  
 RHINELANDER, CHARLES E.,  
 RHINELANDER, FREDERIC W.,  
 RHINELANDER, PHILIP,  
 RHOADES, MRS. JOHN H.,  
 RICE, MISS MILDRED G.,  
 RICE, MRS. WILLIAM B.,  
 RICHARD, EDWIN A.,  
 RICHARD, MISS ELVINE,  
 RICHARDS, E. O.,  
 RICHARDS, EBEN,  
 RICHARDSON, MRS. C. TIFFANY,  
 RIDDER, HERMAN,  
 RIGGS, GEO. C.,  
 \*RIKER, SAMUEL,  
 RIPLEY, H. DILLON,  
 RIPLEY, JULIAN A.,  
 RIPLEY, LOUIS A.,  
 RIVES, GEORGE L.,  
 ROBBINS, CHANDLER,  
 ROBBINS, MRS. HELEN C.,  
 ROBERTS, G. THEODORE,  
 ROBERTS, MISS M. M.,  
 ROBERTSON, ALBERT,  
 ROBERTSON, MRS. FANNY P.,  
 ROBERTSON, R. H.,  
 ROBINSON, MRS. DOUGLAS,  
 ROBINSON, EDWARD,  
 ROBINSON, ELI K.,  
 ROBINSON, G. H.,  
 ROBINSON, MISS PAULINE,  
 ROBISON, WILLIAM,  
 ROCKWOOD, WILLIAM H.,

ROE, FRANK O.,  
 ROE, IRVING L.,  
 ROELKER, ALFRED,  
 ROGERS, E. L.,  
 ROGERS, MRS. FRANCIS,  
 ROGERS, HUBERT E.,  
 ROGERS, JAMES H.,  
 ROGERS, MRS. WILLIAM BEVERLEY,  
 ROKENBAUGH, HENRY S.,  
 ROOSEVELT, MRS. JAMES,  
 ROOSEVELT, W. EMLEN,  
 ROOT, ELIHU,  
 ROSSITER, ARTHUR W.,  
 ROTH, FREDERICK G. R.,  
 ROTH, J. E.,  
 ROTHWELL, JAMES E.,  
 ROWLAND, THOMAS,  
 RUNYON, CARMAN R.,  
 RUNYON, E. W.,  
 RUPERT, JUSTUS,  
 RUPPERT, JACOB,  
 RUPPERT, MRS. JACOB,  
 RUSSELL, ARCHIBALD D.,  
 RUSSELL, DR. JOHN F.,  
 RUTHVEN, ALEXANDER G.,  
 RYAN, J. D.,  
 RYLE, ARTHUR,  
 RYLE, GRAHAM,  
 SACKETT, MISS GERTRUDE T.,  
 SAGE, JOHN H.,  
 SAMPSON, CHARLES E.,  
 SANDS, MISS ANNE A.,  
 SANDS, MRS. B. AYMAR,  
 SANDS, BENJAMIN AYMAR,  
 SANGER, MRS. RALPH,  
 SATTERLEE, MRS. H. L.,  
 SAUTER, JR., FRED,  
 SAUTER, FREDERICK,  
 SCHAAF, HERMANN,  
 SCHAEFER, ANDREAS F.,  
 SCHAEFER, EDWARD C.,  
 SCHAEFER, HENRY,  
 SCHANCK, GEORGE E.,  
 SCHAU, C. F.,  
 SCHAUFFLER, DR. A. F.,  
 SCHAUFFLER, MRS. A. F.,  
 SCHEFER, CARL,  
 SCHIEFFELIN, MRS. H. M., ,  
 SCHIEFFELIN, WILLIAM JAY,  
 SCHIRMER, RUDOLPH E.,  
 SCHMELZEL, MISS JANE E.,  
 SCHMIDT, ADOLPH T.,  
 SCHMIDT, F. LEOPOLD,  
 SCHMIDT, WILLIAM H.,  
 SCHNABEL, R. A.,  
 SCHNIEWIND, F.,  
 SCHOLLE, A. H.,  
 SCHIRAG, CHARLES A.,

\* Deceased.

- SCHREIBER, LOUIS,  
 \*SCHREYVOGEL, CHARLES,  
 SCHULTZE, FRED,  
 SCHUYLER, MISS LOUISA LEE,  
 SCHWARCZ, MAX M.,  
 SCHWARZ, HENRY F.,  
 SCOFIELD, MISS MARION,  
 SCOTT, DONALD,  
 SCOTT, HON. FRANCIS M.,  
 SCOTT, FRANK H.,  
 SCOTT, WILLIAM,  
 SCOVILLE, MRS. JOHN H.,  
 SCOVILLE, ROBERT,  
 SCRIBNER, ARTHUR H.,  
 SCRIBNER, MRS. CHARLES,  
 SCRYMSEY, JAMES A.,  
 SEDGWICK, ROBERT,  
 SEE, A. B.,  
 SELIGMAN, ALFRED L.,  
 SELIGMAN, JEFFERSON,  
 SENFF, MRS. CHARLES H.,  
 SETON, ALFRED,  
 SEXTON, LAWRENCE E.,  
 SEYBEL, DANIEL E.,  
 SHAPIRO, D.,  
 SHARDLOW, MRS. JOSEPH,  
 SHAW, LOUIS AGASSIZ,  
 SHEETS, DR. E. A.,  
 SHEFFIELD, JAMES R.,  
 SHEFFIELD, MRS. JAMES R.,  
 SHELTON, MRS. CHARLES,  
 SHELTON, EDWARD W.,  
 SHELTON, GEORGE R.,  
 SHELTON, WILLIAM C.,  
 SHOEMAKER, HENRY W.,  
 SHURTLEFF, ROSWELL MORSE,  
 SIBLEY, MRS. H. W.,  
 SICKLES, MAJ.-GEN. DANIEL E.,  
 SIEGEL, JACOB,  
 SILLECK, JR., HENRY G.,  
 SILLECK, JR., MRS. HENRY G.,  
 SILLIMAN, HARPER,  
 SIMON, THEODOR A.,  
 SIMONS, MISS CORNELIA N.,  
 SIMPSON, JOHN W.,  
 SINCLAIR, MRS. JOHN,  
 SINGER, ARTHUR J.,  
 SKEEL, DR. FRANK D.,  
 SKIDMORE, WILLIAM L.,  
 SLADE, FRANCIS LOUIS,  
 SLAUGHTER, R. B.,  
 SLOCUM, J. J.,  
 SMIDT, MRS. G. L.,  
 SMILEY, DANIEL,  
 SMILLIE, CHARLES F.,  
 SMILLIE, JAMES C.,  
 SMILLIE, RALPH,  
 SMITH, DR. A. ALEXANDER,  
 SMITH, AUGUSTINE J.,  
 SMITH, MRS. CHAS. S.,  
 SMITH, ERSKINE M.,  
 SMITH, MRS. F. C. W.,  
 SMITH, MRS. F. HOPKINSON,  
 SMITH, F. M.,  
 \*SMITH, NATHANIEL S.,  
 SMITH, ROBERT K.,  
 SMITH, ROLAND W.,  
 SMITH, DR. SAMUEL,  
 \*SMITH, WILLIAM ALEXANDER,  
 SMITHERS, CHARLES,  
 SMITHERS, F. S.,  
 SNOW, E. G.,  
 SOLTSMANN, E. G.,  
 SORCHON, MRS. VICTOR  
 SPALDING, KEITH,  
 SPARROW, EDWARD W.,  
 SPEAR, JR., JAMES,  
 SPEDDEN, FREDERIC O.,  
 \*SPENCER, EDWARDS,  
 SPEYER, MRS. JAMES,  
 SPITZNER, GEORGE W.,  
 SPOFFORD, MRS. J. L.,  
 SPRAGUE, MRS. FRANK J.,  
 SPRIGG, JUDGE CARROLL,  
 SPRING, MISS ANNA RIKER,  
 SPURR, E. W.,  
 SQUIBB, DR. EDWARD H.,  
 STAFFORD, WILLIAM FREDERICK,  
 STAFFORD, MRS. WILLIAM FREDERICK,  
 STANDISH, MYLES,  
 STANTON, JOHN R.,  
 STARR, LOUIS MORRIS,  
 STEARNS, LOUIS,  
 STEBBINS, JAMES H.,  
 STECKER, ADAM A.,  
 STEELE, MRS. CHARLES,  
 STEIN, MRS. ALEXIS W.,  
 STEINBECK, EDWARD,  
 STEINMETZ, JOHN A.,  
 STEPHENS, OLIN J.,  
 STETSON, REV. C. R.,  
 STEVENS, ALEXANDER H.,  
 STEVENS, FREDERIC W., ,  
 STEVENS, RICHARD,  
 STEVENS, MRS. RICHARD,  
 STEVENS, THEODOSIUS F.,  
 STEWART, JAMES,  
 STEWART, MRS. JOHN B.,  
 STEWART, MRS. PERCY HAMILTON,  
 STEWART, WILLIAM R.,  
 STILLMAN, MRS. C. C.,  
 STILLMAN, JAMES A.,  
 STIMSON, DR. DANIEL M.,

\* Deceased.

STOCKMANN, MISS MARIE F. C.,  
 STOECKEL, CARL,  
 STOKES, H. B.,  
 STONE, MISS ANNIE,  
 STOUT, JOSEPH S.,  
 STOW, GEORGE G.,  
 STRANGE, A. B.,  
 STRAUS, H. GRANT,  
 STRAUSS, FREDERICK,  
 STREAT, JAMES,  
 STREETER, JR., D. D.,  
 STRONG, JR., BENJAMIN,  
 STRONG, THERON G.,  
 STROOCK, LOUIS S.,  
 STUART, MRS. MALCOLM,  
 STURGES, MISS,  
 STURGES, HENRY C.,  
 SULLIVAN, MRS. JAMES,  
 SUTPHEN, JOHN S.,  
 SWENSON, MRS. ERIC P.,  
 SWENSON, S. A.,  
 TABER, MISS MARY,  
 TAFT, HENRY W.,  
 TAG, ALBERT,  
 TALCOTT, JAMES,  
 TALMAGE, MRS. E. T. H.,  
 TAMS, MRS. J. FREDERIC,  
 TATHAM, CHARLES,  
 TATUM, A. H.,  
 TAYLOR, GEORGE,  
 TAYLOR, MRS. HENRY OSBORN,  
 TAYLOR, HENRY R.,  
 TAYLOR, HERBERT C.,  
 TAYLOR, JAMES B.,  
 TAYLOR, KNOX,  
 TAYLOR, LLOYD,  
 TAYLOR, MOSES,  
 TAYLOR, STEVENSON,  
 TENNEY, C. H.,  
 TERRY, JOHN T.,  
 TERRY, JR., MRS. JOHN T.,  
 THACHER, ARCHIBALD G.,  
 THACHER, MRS. GEORGE W.,  
 THACHER, THOMAS,  
 THAW, BENJAMIN,  
 THAYER, MRS. EZRA RIPLEY,  
 THAYER, HARRY BATES,  
 THOMAS, DR. ALLEN M.,  
 THOMAS, MRS. WASHINGTON,  
 THOMPSON, MRS. J. TODD HUNTER,  
 THORNE, MRS. EDWIN,  
 THORNE, JONATHAN,  
 THORNE, MRS. JONATHAN,  
 THORNE, NEWBERRY D.,  
 THORNE, MRS. SAMUEL,  
 THORNE, W. V. S.,  
 THORNE, MRS. W. V. S.,

\*THORP, W. EDWIN,  
 TIFFANY, LOUIS C.,  
 TILLEY, GEORGE D.,  
 TILTON, JOSEPH W.,  
 TIMKEN, J. HENRY,  
 TIMMERMAN, HENRY G.,  
 TIMPSON, JAMES,  
 TOD, J. KENNEDY,  
 TODD, H. H.,  
 TOLER, MRS. VIRGINIA W.,  
 TOMBY, BORGFELDT,  
 TONNELE, MRS. JOHN N.,  
 TOUSEY, WILLIAM,  
 TOWNSEND, MISS AMY C.,  
 TOWNSEND, MRS. E. M.,  
 TOWNSEND, EDWIN S.,  
 TOWNSEND, HOWARD,  
 TOWNSEND, ISAAC,  
 TOWNSEND, J. HENRY,  
 \*TOWNSHEND, JOHN,  
 TOWS, COE DOWNING,  
 TROWBRIDGE, FREDERIC K.,  
 TROWBRIDGE, MISS LOUISE A.,  
 TUCKERMAN, ALFRED,  
 TUCKERMAN, PAUL,  
 TURNBULL, ARTHUR,  
 TURNBULL, MRS. RAMSAY,  
 TURNURE, MRS. ARTHUR,  
 TURNURE, GEORGE E.,  
 TUTTLE, DR. G. M.,  
 TWEDDELL, WILLIAM H.,  
 TWEED, MRS. CHARLES H.,  
 TWINING, E. S.,  
 UNDERWOOD, WILLIAM LYMAN,  
 UPMANN, CARL,  
 VALENTINE, MRS. PATRICK A.,  
 VALENTINE, DR. WILLIAM A.,  
 VAN BEUREN, JR., FREDERICK T.,  
 VAN BEUREN, M. M.,  
 VAN CORTLANDT, AUGUSTUS,  
 VANDERBILT, ALFRED G.,  
 VANDERPOEL, MRS. JOHN A.,  
 VAN DER SMISSEN, DR. G. J.,  
 VAN EMBURGH, D. B.,  
 VAN INGEN, MRS. E. H.,  
 VAN INGEN, MRS. EDWARD,  
 VAN NOSTRAND, B. T.,  
 VAN SINDEREN, HOWARD,  
 VAN WINKLE, EDGAR B.,  
 VARCOE, HAROLD,  
 VIETOR, ADOLPH,  
 VIETOR, THOMAS F.,  
 VINCENT, FRANK,  
 VOGEL, HERMAN,  
 VONDERMUHL, ALFRED,  
 VON GONTARD, MRS. ALEXANDER,  
 VON LINGERKE, JUSTUS,

\* Deceased.

- WADDINGTON, GEORGE.  
 WAGSTAFF, C. DuBOIS,  
 \*WAINWRIGHT, J. HOWARD,  
 WALBURN, JOSEPH,  
 WALCOTT, FREDERIC C.,  
 WALLEON, S. D.,  
 WALES, EDWARD H.,  
 WALLER, JR., ROBERT,  
 WALLER, JR., MRS. ROBERT,  
 WALSH, SAMUEL A.,  
 WALTER, EDGAR,  
 WALTER, MARTIN,  
 WANNINGER, CHARLES,  
 WARBURG, PAUL M.,  
 WARD, ARTEMAS,  
 WARD, MRS. GEORGE CABOT,  
 \*WARD, HENRY C.,  
 WARDNER, HENRY STEELE,  
 WARDWELL, ALLEN,  
 WARNER, W. E.,  
 WARREN, MRS. J. HOBART,  
 WARREN, LOYD,  
 WATERBURY, MISS,  
 WATERBURY, JOHN I.,  
 WATSON, CHARLES F.,  
 WATSON, REV. J. HENRY,  
 \*WEATHERBEE, EDWIN H.,  
 WEBB, F. EGERTON,  
 WEBB, MRS. WILLIAM SEWARD,  
 WEBER, CHARLES,  
 \*WEBER, DR. LEONARD,  
 WEEKS, JAMES,  
 WEIR, MRS. C. GOUVERNEUR,  
 WELLS, OLIVER J.,  
 WENDELL, EVERT JANSEN,  
 WENDELL, MRS. JACOB,  
 WERNER, C. H.,  
 WERTHEIM, H. P.,  
 WESTOVER, M. F.,  
 WETMORE, EDMUND,  
 WHEELER, EVERETT P.,  
 WHEELER, WALTER S.,  
 WHEELOCK, MRS. G. G.,  
 WHITE, A. M.,  
 WHITE, HAROLD T.,  
 WHITE, HORACE,  
 WHITE, JR., JOHN JAY,  
 WHITE, LEONARD D.,  
 WHITEHOUSE, J. HENRY,  
 WHITEHOUSE, WILLIAM F.,  
 WHITING, DR. CHARLES A.,  
 WHITING, MISS GERTRUDE,  
 WHITLOCK, MRS. HARRY H.,  
 WHITMAN, CLARENCE,  
 WHITMAN, JR., WILLIAM,  
 WHITRIDGE, F. W.,  
 WICKERSHAM, GEORGE W.,  
 WILKINS, F. H.,  
 WILLETS, JOHN T.,  
 WILLIAMS, DAVID,  
 WILLIAMS, MRS. G. G.,  
 WILLIAMS, GEORGE L.,  
 WILLIAMS, MRS. PERCY H.,  
 WILLIAMS, R. H.,  
 WILLIAMS, JR., RICHARD H.,  
 WILLIAMS, THOMAS,  
 WILLIAMS, WALDRON,  
 WILLIAMS, WILLIAM,  
 WILLIAMSON, MRS. BUTLER,  
 WILLS, CHARLES T.,  
 WILSON, PROF. EDMUND B.,  
 WILSON, GEORGE T.,  
 WINANT, FREDERICK,  
 WINCKELBACH, L. O.,  
 WINTERROTH, MAJ. E. J.,  
 WINTHIROP, EGERTON L.,  
 WINTHIROP, JR., EGERTON L.,  
 WINTHIROP, JR., MRS. EGERTON L.,  
 \*WINTHIROP, ROBERT DUDLEY,  
 WISNER, CHARLES,  
 WITHERBEE, FRANK S.,  
 WITTHAUS, DR. RUDOLPH A.,  
 WOLF, ARTHUR D.,  
 WOLFF, EMIL,  
 WOOD, ARNOLD,  
 WOOD, GILBERT CONGDON,  
 WOOD, J. WALTER,  
 WOOD, MRS. JOHN D.,  
 WOOD, WILLIAM CONGDON,  
 WOODHOUSE, J. S.,  
 WOODRUFF, ALBERT C.,  
 WOODWARD, ROBERT B.,  
 WOODWARD, SR., MRS. WILLIAM,  
 WORCESTER, WILFRED J.,  
 WORRALL, P. B.,  
 WRIGHT, J. DUNBAR,  
 WRIGHT, JOHN HOWARD,  
 WUNDERLICH, H.,  
 WYCKOFF, DR. PETER BROWN,  
 YORKWITZ, ALBERT,  
 YOUNG, A. MURRAY,  
 YOUNG, GEORGE W.,  
 ZABRISKIE, ANDREW C.,  
 ZINSSER, AUGUST,  
 ZINSSER, MRS. AUGUST,  
 ZINSSER, JR., AUGUST,

### Corresponding Members

- GILFEDDER, T. P.,  
 JOHNSTON, SIR HARRY H.,  
 LE SOUEF, H. W. DUDLEY,  
 STURTEVANT, LIEUT. C. G.,

\* Deceased.

**Summary of Membership**

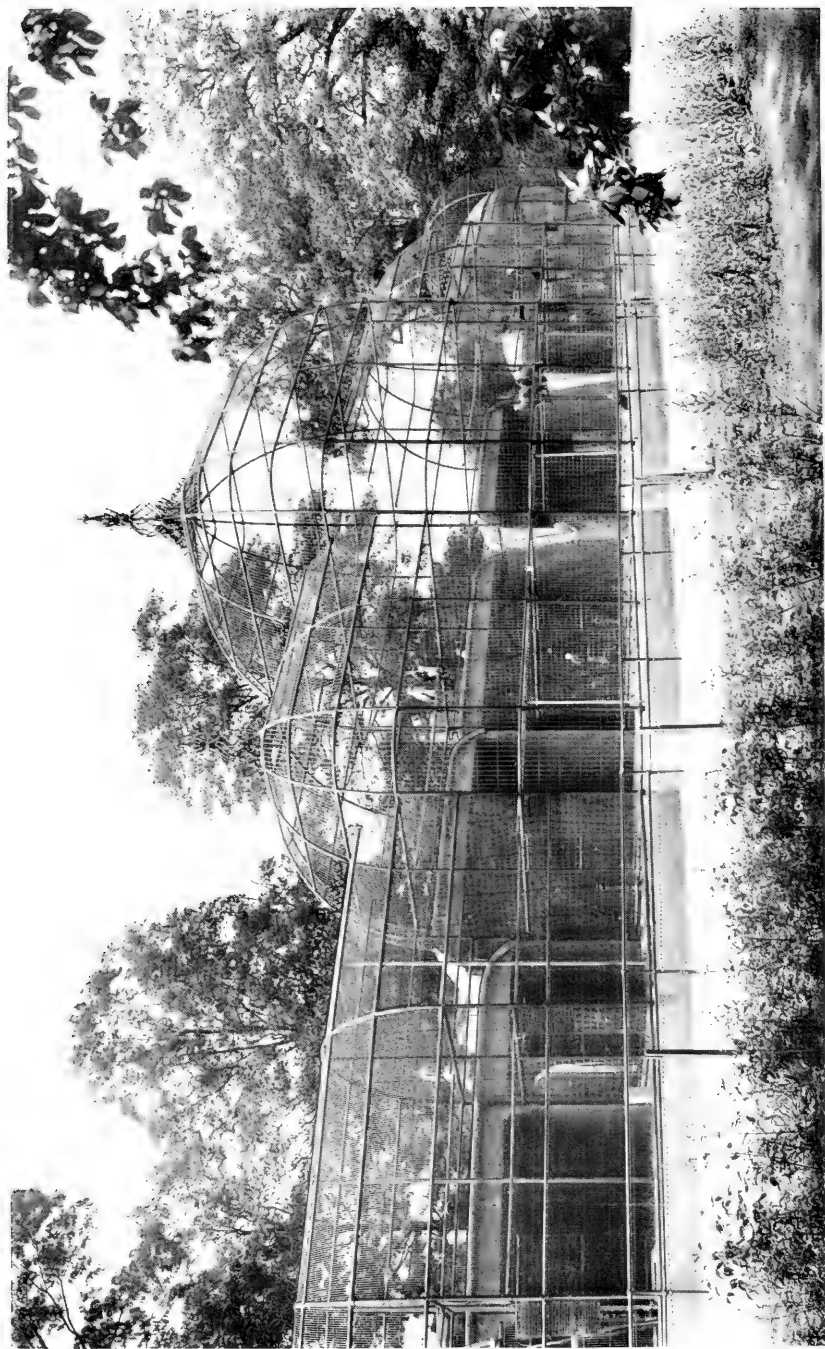
Benefactors .....	7
Founders in Perpetuity .....	16
Founders .....	19
Associate Founders .....	8
Patrons .....	38
Life Members .....	242
Annual Members .....	1,598
Honorary and Corresponding Members .....	14
	<hr/>
	1,942

**Qualifications for Regular Membership**

Annual Members .....	\$ 10	Associate Founders.....	\$ 2,500
Life Members.....	200	Founders .....	5,000
Patrons .....	1,000	Founders in Perpetuity..	10,000
Benefactors .	.....		\$25,000

**Form of Bequest**

*I do hereby give and bequeath to the "NEW YORK ZOOLOGICAL SOCIETY," of the City of New York, .....*



EAGLE AND VULTURE AVIARY

# REPORT OF THE EXECUTIVE COMMITTEE TO THE BOARD OF MANAGERS.

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THE Executive Committee respectfully submit the following report to the Board of Managers for the year 1912:

It is the sad duty of the Committee to announce the death of Mr. Hugh J. Chisholm, a member of the Board of Managers, on July 8th, 1912. Mr. Chisholm was one of the earliest of our Managers to give his interest and sympathy to the Society. He became a Patron on December 13, 1899; a Founder on January 4, 1912, a member of the Board of Managers on January 9, 1900, and remained an active and interested member until his death. The Executive Committee adopted a resolution which will appear at the end of this report.

## MEMBERSHIP.

The membership of the Society on January 1, 1913, shows a slight increase during the year, and is as follows:

Benefactors .....	7
Founders in Perpetuity .....	16
Founders .....	19
Associate Founders .....	8
Patrons .....	38
Life Members .....	242
Annual Members .....	1,598
Honorary and Corresponding Members.....	14

---

Total, 1912 .....	1,942
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Total, 1911 .....	1,902
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The increase is larger than would appear from the above, owing to the fact that the actual number was depleted by the dropping of 57 annual members, who were heavily in arrears and have been carried on the books for several years.

During the coming year our active campaign for members will be renewed, and with the assistance of the Ladies Auxiliary it is hoped that substantial additions to our membership can be made. In a great city of this size there must be public spirited citizens who will appreciate the advantages accruing to membership, especially in connection with the new Administration

Building, which has greatly added to the comfort of members visiting the Park.

We deeply regret to report that we have lost through death during the year, forty-six of our Annual Members and the following Life Members: Frank S. Bond, Peter Doelger, George Eggleston Dodge, Ben-Ali H. Lounsbery and Edward Russ.

#### ATTENDANCE, PARK AND AQUARIUM.

The attendance at the Aquarium for the year 1912 was 2,144,355, an increase of 132,811 over the year 1911. The attendance at the Park for the year 1912 was 1,708,455, an increase of 226,550 over the year 1911. This increase in the attendance for the year 1912 is almost 100,000 in excess of any previous figures.

The attendance at these two institutions, taken together, shows that the cost to the City of New York for maintenance, is at the rate of about 6 cents per person.

#### ENDOWMENT FUND.

On January 1, 1912, the Endowment Fund amounted to \$284,862, and during the year the following subscriptions were received:

Edward S. Harkness .....	\$5,000
Estate of Edward Russ, deceased .....	5,000
Life Membership fees .....	2,800

The total endowment on December 31, 1912, amounted to \$297,662.

This fund has been invested by the Treasurer at a net rate of income of 4.487%. A list of the securities is set forth in detail in the report of the Treasurer.

During the year 1912 the sum of \$30,386.33 has been invested by the Treasurer in the following bonds:

\$20,000 Milwaukee, Sparta & Northwestern, first mortgage 4% bonds.

12,000 Chicago, Milwaukee & Puget Sound, 4% first mortgage bonds.

1,000 N. Y. L. & W. Terminal 4% bonds—  
leaving a small balance uninvested of \$1,226.52.

During the year 1913 your Committee intend to make an effort to increase this fund to half a million, so as to provide additional income for the general purposes of the Society, which is now, and always has been, the weak point in its finances.

This year is the last during which the Sustaining Memberships are available, and as this has netted us \$3,000 yearly dur-



ing the last four years, its loss will be greatly felt by the Income Account, unless additional interest is available from the Endowment Fund.

There are one or two bequests which will become available during the year, notably one from the estate of the late Henry Iden, in the amount of \$10,000, as well as possibly an additional \$5,000 from the estate of the late Edward Russ.

It is hoped that the members of the Society will do what they can to secure subscriptions or bequests to the Endowment Fund. The total amount of our endowment remains ridiculously small for a Society with such heavy burdens as the New York Zoological Society, and the efficiency of the Society in matters of general conservation of wild life would be greatly enhanced if it had available a substantial sum for such objects.

#### ACCOUNTS.

On January 1st, 1912, the various balances to the credit of the Society in the Farmers' Loan and Trust Company were consolidated into a single uniform account, which greatly simplified the bookkeeping system. This new arrangement has worked very satisfactorily during the year.

The accounts for 1912 are being audited by Messrs. Marwick, Mitchell, Peat and Company, whose printed report will be attached hereto, immediately following the report of the Treasurer.

The Privilege Accounts have also been thoroughly audited and found correct in every respect.

All the accounts of the Society close the year with credit balances, with the exception of the fund for the National Collection of Heads and Horns, which has been overdrawn. The balances are as follows:

Endowment Fund .....	\$1,226.52
Library Fund .....	320.69
Caroline Phelps Stokes' Bird Fund.....	116.69
Income Account .....	\$7,394.59
Endowment Fund Income Account...	3,806.07
	<hr/>
	\$11,200.66

#### *Overdraft:*

National Collection of Heads and Horns.....	\$241.00
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*Income Account.*—The balance to the credit of this fund on January 1, 1912 (less invested funds and advance payments

of Sustaining Membership for 1913) amounted to \$10,356.77, made up as follows:

Income Account balance .....	\$ 3,529.83	
Endowment Fund Income Account available for transfer to this account...	6,826.94	
		<hr/> \$10,356.77

The receipts during 1912 were as follows:

Advance payments, Sustaining Membership, 1912 .....	\$600.00	
Income from Annual Members .....	15,450.00	
Miscellaneous receipts .....	1,788.80	
Sustaining Memberships (not including advance payments) .....	2,240.00	
Sale of bond in accordance with provisions of gift from Mr. John D. Rockefeller .....	990.00	
Income from the Endowment Fund during the year, placed to the credit of the Endowment Fund Income Account, but available for transfer to this account .....	12,479.13	
		<hr/> 33,547.93

43,904.70

The disbursements during 1912 were..... 33,304.04

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\$10,600.66

Leaving a cash balance on hand December 31, 1912, of \$10,600.66, to which should be added advance payments of Sustaining Membership for 1913, \$600, making a total balance of \$11,200.66, made up as follows:

Income Account balance .....	\$ 7,394.59
Endowment Fund Income Account balance available for transfer to this account.....	3,806.07

---

\$11,200.66

*Endowment Fund Income Account.*—The Endowment Fund Income Account showed a balance of \$6,826.94 on January 1st, 1912. During the year the net income from the Endowment Fund amounted to \$12,479.13. \$15,500 have been transferred, during the year, from this fund to the regular Income Account of the Society. This is in accordance with the purpose of this

fund, it being created merely to distinguish income from the Endowment Fund from the income from dues and other sources. This fund is available at all times for transfer to the regular Income Account, and for use in the general work of the Society.

The balance on December 31, 1912, amounted to \$3,806.07.

*Stokes' Bird Fund.*—The Stokes' Bird Fund on January 1, 1912, had a cash balance of \$209.88, and during the year there was received income from the Endowment Fund furnished by the late Miss Caroline Phelps Stokes, in the amount of \$206.81. The sum of \$300 was expended during the year for the protection of wild life, chiefly in the necessary expenses connected with the promoting of the passage of the bill affording Federal protection to migratory birds now before Congress. The balance on December 31, 1912, amounted to \$116.69.

*Library Fund.*—The balance to the credit of this fund on January 1, 1912, amounted to \$1,081.61. During the year the only credits have been a special subscription of \$250 from Mr. Jacob H. Schiff and \$20.63 as interest. The charges against this fund, however, amount to \$1,031.55, leaving a balance on December 31, 1912, of \$320.69.

This fund needs immediate attention, the lack of funds being a serious drawback to the increase of the library to a size sufficient for the needs of scientific work in connection with our collections.

*National Collection of Heads and Horns.*—The fund for the National Collection of Heads and Horns opened the year 1912 with a balance of \$27.64. To this, during the year, has been added the sum of \$183.30, being a special subscription of \$100 from Mr. Jacob H. Schiff, interest, and subscriptions from the small list of annual contributors. The charges against this fund, however, aggregate \$451.94, leaving a net overdraft of \$241 at the close of the year. This is the only fund of the Society which shows an overdraft.

*Animal Fund.*—The receipts for the Animal Fund during the year have been as follows:

Received from Special Subscriptions .....	\$ 150.00
Received from Sales of Animals.....	1,280.00
Received from Park Privileges .....	11,923.90
Balance January 1, 1912, (including cash in hands of Chief Clerk) .....	32,945.34

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Total receipts ..... \$46,299.24

## Expended for animals during 1912:

Birds .....	\$ 7,472.28	
Mammals .....	21,388.86	
Reptiles .....	1,388.80	
Insects .....	249.67	
		<hr/>
Total .....	\$30,499.61	
Express and other charges	1,278.58	
Travelling and other ex-		
penses .....	2,810.39	
		<hr/>
		\$34,588.58

Balance, December 31, 1912..... \$11,710.66

*Aquarium Privilege Fund.*—The balance to the credit of this account on January 1st, 1912, was \$936.68.

During the year \$1,380.50 were received from the sale of publications, etc., and \$765.11 expended, leaving a net balance on hand of \$1,552.07 on December 31, 1912.

*Maintenance of the Park.*—The money supplied by the City for the maintenance of the Park during 1912, viz.—\$182,365—has caused the officers of the Society much concern during the year. This matter becomes more and more serious each year with the increasing cost of supplies. During the summer there was a deficit of \$1,000, but by unceasing economy and strenuous efforts this deficit has been marked off, and the year 1912 will close without an appeal to the City authorities for additional maintenance to meet our bills.

Maintenance has been provided for the year 1913 in the amount of \$191,925—an increase of \$9,560 over the year 1912, which is very satisfactory. The increased cost of supplies, however, will make it necessary to conduct the affairs of the Park on the usual economic basis.

The Metropolitan Museum of Art, and the American Museum of Natural History each receive from the City the sum of \$200,000 for annual maintenance, and it is hoped that in the immediate future this amount may be appropriated by the City for the maintenance of the Park. Your committee consider that the Society is entitled to this full amount because in addition to the feeding, guarding and sheltering of its huge collections, it has the care and development of 200 and more acres of Park land.

*Maintenance of Aquarium.*—The maintenance supplied by the City for the Aquarium during the year 1912 proved adequate, and the year will close without a deficit.

For the year 1913, however, the City authorities have reduced the maintenance fund to \$47,345.50. With care this fund can no doubt be made to last throughout the year.

*Aquarium Improvement Fund.*—On December 31, 1912, a balance of \$344.50 remained to the credit of the Aquarium Improvement Fund. This balance is the same as that carried forward last year, no charge having been made against the fund during the year.

*Ground Improvement Fund.*—On January 1st, 1912, there was a balance of \$157,991.60 to the credit of the Ground Improvement Fund, being the balances of the funds appropriated by the City in 1910 and in 1911. On December 31, 1912, the balances to the credit of these two funds were as follows:

## APPROPRIATION, 1910.

	Orig. Approp.	Balance.
Fund for Yak Shelter,		
Orig. approp.....	\$2,333.00	.
Transferred from Zebra		
House Fund .....	5,188.96	\$7,521.96
		\$2,528.62

## APPROPRIATION, 1911.

	Orig. Approp.	Balance.
Zebra House Yards .....	\$15,000.00	\$7,200.00
Public Service Building .....	30,000.00	477.70
Power Plant, Work Shop, etc.....	35,000.00	9,910.25
Winter House for Pelicans and other birds .....	5,000.00	
Miscellaneous, including planting, fencing, yards, small installations, etc., etc., and other permanent improvements .....	35,000.00	12,875.61
Development of Park east of Bronx River, including one Public Service Pavilion, planting, walks, paths, etc., etc., and other permanent improvements .....	15,000.00	8,050.00
New Walks and reconstruction of existing walks .....	15,000.00	3,387.12
Rocking Stone Restaurant extension.....	5,000.00	
		<hr/>
		\$41,900.68

Total balance to credit of two appropriations .....	\$44,429.30
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Great economy in the expenditure of the above balances is required until such time as the City can supply additional funds for our use.

#### CORPORATE STOCK.

The original application for funds for ground improvement work in the Park, made during 1912, amounting to \$195,000, has been amended several times by the City authorities until it has been reduced to about \$40,000. Action is pending by the Board of Estimate and Apportionment. The present financial condition of the City, however, renders it probable that no corporate stock will be issued for our use at this time. It is hoped that eventually a sufficient amount will be authorized to construct the much needed Quarantine and Hospital, as well as a fund for miscellaneous improvements. A Pheasant Flying Cage, and a tank for the Pygmy Hippopotami, are also dependent on this stock issue.

#### NEW AQUARIUM BUILDING.

This matter has proceeded slowly during the year, owing to the failure of the Board of Estimate and Apportionment to act on the application for corporate stock in addition to the \$200,000 appropriated during 1911. The present condition of the finances of the City, however, renders it probable that this work will not be begun by the construction of one or both wings, and it may prove desirable to postpone the commencement of this great undertaking until such time as the City is in a position to provide sufficient funds to construct the entire building at one time, instead of in four sections as has heretofore been contemplated.

During the Summer borings were made for foundations and solid rock was found at a depth of thirty-five to forty feet, thus proving that there will be no serious difficulty in the construction of foundations for this structure.

A large model of this building has been prepared and is open to the inspection of the members of the Society at the American Museum of Natural History.

The plans have been formally approved by the Commissioner of Parks, Mr. Charles B. Stover, and by the Landscape Architect, Mr. Charles Downing Lay.

## CONSTRUCTION.

*Zebra House and Yards.*—The Zebra House and surrounding yards are entirely finished and occupied.

*Power Plant and Work Shops.*—A contract for the construction of a Power Plant and Work Shop in the Park was awarded by the Park Department on August 29th, in the amount of \$23,895. The contractor is the A. V. Johnson Company. Work has been started and to date the foundations and the brick work for the first floor have been finished. It is hoped to be able to occupy same during the early part of 1913. This building is absolutely necessary to adequately take care of the maintenance work at the Park, and heretofore has been greatly missed.

*Public Service Building.*—A contract for the construction of a Public Service Building, to provide headquarters for the various branches of the Privilege Department at the Park, and also to provide machinery for manufacturing needs, was awarded by the Park Department on October 24, 1912, to J. F. Walsh & Bro., in the amount of \$29,230. Work has been started and is proceeding rapidly.

*Yak Shelter.*—Plans have been prepared for the erection of a Yak Shelter in the southeasterly portion of the Bison Range, providing for yaks and other animals which can live out of doors in winter, so that visitors arriving through the Boston Road entrance will observe living animals immediately on entering the Park. The plans have been approved by the Society, and are at present in the hands of the Municipal Art Commission.

The fund originally provided by the City for the erection of this building, in connection with the new bear dens, etc., proved insufficient; but this matter has been satisfactorily arranged by the transfer of a balance of \$5,188.96, standing to the credit of the Zebra House, and not needed for that purpose.

As soon as the plans are approved by the Municipal Art Commission work will be started at once.

*Rocking Stone Restaurant.*—A contract for extensions to the Rocking Stone Restaurant, which will increase the size of the dining rooms, kitchen and pantry, was awarded on August 29, 1912, to Joseph Balaban, in the amount of \$3,900. Work was started in September and is now practically complete. The increasing demands of the public will be served by the new accommodation.

*Winter House for Pelicans and other Birds.*—A contract for the erection of this building was awarded to Joseph E. Dodds on May 2, 1912, in the amount of \$3,950. This building is needed for the storage of pelicans and large tropical water birds during the cold weather. The work is complete and the building is now in use.

*Shelter Pavilion.*—Plans are in course of preparation for the erection of a Shelter Pavilion to the east of the Bronx River, to provide shelter for visitors to that portion of the Park.

*Elephant House Roof.*—Great injury was done during the winter of 1911 by the imperfect construction of the roof of the Elephant House, for which the contractor and his bondsman are being held responsible. Meanwhile an issue of special revenue bonds has been secured from the Board of Aldermen, and a contract let for the repairs to this roof to the Keepsdry Construction Company, in the amount of \$6,000.

*Eagle and Vulture Aviary.*—This building has been completed, and is now filled with a splendid collection of these birds.

#### IMPORTANT GIFTS.

During the year a number of valuable gifts have been received, the most important of which are four young Hooded Seals, presented by Mr. Harry Whitney and Captain Robert Bartlett, captured by them in Arctic waters; and a young male silver-tipped Grizzly Bear from the Rocky Mountains of Alberta, presented by Mr. N. K. Luxton, of Banff. Other gifts were: Polar Bear, by Mr. S. Osgood Pell; Ocelot, by Mr. L. C. Good; Indian Jackal, by Mr. W. H. Stather; Striped Tailed Fox, by Mr. R. H. Millward; and 2 South American Condors, by Mr. A. W. Yount.

Mr. Emerson McMillin has also presented a large oil painting of Rocky Mountain Sheep, by Carl Rungius, entitled, "The Mountaineers," which has temporarily been hung in the East Gallery of the Administration Building.

#### ANIMALS

The most important purchase during the year has been that of three Pygmy Hippopotami, which are of extraordinary interest, being the first living specimens of this almost unknown species ever placed on exhibition. They are at present in the Elephant House and are thriving.

Additional important purchases during the year have been as follows: 2 Tasmanian Devils, 1 Tasmanian Wolf, 2 Bengal Tigers, 1 Hamadryas Baboon, 1 Cheetah, 9 Beavers, a collection



of Monkeys and Lemurs, 3 Prong-Horned Antelope, 1 Murine Opossum, 2 Pandas, 12 Prevost Squirrels, 1 Brazil Porcupine, 1 Kadiak Bear, 4 Rocky Mountain Goats, 2 Rocky Mountain Sheep, 5 Sea Lions, 1 Spring Buck and 2 Bush Bucks.

A wonderfully choice collection of 119 rare and beautiful foreign birds has also been purchased, representing 69 species, of which 40 are new to the Zoological Park. This collection was formed by the Assistant Curator of Birds, Mr. Lee S. Crandall, during a special tour of England and northern Europe, in quest of rarities with which to enrich our collection.

The reptile collection has also been strengthened by a collecting trip in New York State. Over 150 specimens of snakes were collected, representing nine species.

A census of the animals in the Zoological Park shows the following figures in the number of species and specimens:

Mammals	Species	Specimens
Mammals .....	210	689
Birds .....	903	3,038
Reptiles and Amphibians.....	135	1,100
<hr/>		
Total Jan. 1, 1913.....	1,248	4,827
Jan. 1, 1912 .....	1,251	4,838

During the year there have been 52 births, the more important of which were: 4 Buffaloes, 1 Malay Sambar Deer, 2 Axis Deer, 2 Sika Deer, 2 Hog Deer, 1 Aoudad, 1 Congo Sitatunga, 2 Syrian Bear, 2 Elk, 1 Tahr, 1 Virginia Whitetailed Deer, 1 Axis Deer, 4 Raccoons, 1 Mongolian Wild Horse, 1 Malay Sambar Deer.

#### GORILLA EXPEDITION.

The Executive Committee has authorized an expedition to West Africa to secure living gorillas for exhibition at the Park. The expedition started from New York on November 15th, and is in charge of Mr. R. L. Garner of Philadelphia. During 1911 Mr. Garner was successful in obtaining in equatorial West Africa, a female gorilla between two and three years of age. When it arrived in New York it was quite exhausted by two severe sea voyages and only lived about two weeks. On this trip, however, it is the intention of Mr. Garner to keep the animals secured, in captivity for some time, before attempting their transportation, so that they will become accustomed to the food and the confinement of captivity, and then to bring them directly to New York by a single sea voyage.

## AQUARIUM

The collections at the Aquarium are in excellent condition at the present time. A census of the exhibits is as follows:

	Species	Specimens
Fishes .....	113	3,679
Reptiles .....	24	137
Amphibia .....	5	24
Invertebrates .....	26	1,557
Mammals .....	1	1
<hr/>		<hr/>
Total Jan. 1, 1913 .....	169	5,398

## IMPORTATION OF ANIMALS PROHIBITED.

On account of the prevalence among hoofed animals of the foot-and-mouth disease in Germany and Europe generally, surra in Asia, and rinderpest in some portions of Africa, the United States Department of Agriculture has issued a sweeping prohibition against the importation of any ruminants from the Old World. Were it not that at present our collections of foreign deer, antelopes, gazelles, wild sheep, goats and wild equines are quite well stocked, this prohibition would indeed be a very serious matter for us. We have been compelled to cancel a large order for a number of particularly rare and interesting foreign hoofed animals from Africa that we expected to import in 1913.

## MEDICAL DEPARTMENT.

The general health of the animals during the past year has been excellent. We have been especially fortunate in that no epidemics or serious infectious diseases have occurred among the collections during the year. The death rate is lower than for a number of years, and few important animals have been lost. The health of the Primates collection as a whole has greatly improved during the year. The same is true of the Small Mammals collection, which group of animals is perhaps the most difficult to keep in good condition.

## NATIONAL COLLECTION OF HEADS AND HORNS.

On December 20, 1906, by a formal resolution of the Executive Committee, the National Collection of Heads and Horns was established in the Zoological Park, and Dr. William T. Hornaday presented to the Society, as a nucleus for the proposed collection, his private collection of 131 heads, representing 108 species.

Since that time the collection has greatly increased in numbers and in value, and now totals 798. The fund used for the increase of this collection was depleted during the year, and many opportunities to secure valuable additions to this collection were consequently lost. Until aid is received from some outside source, no great strides can be made in the further enlargement of this collection.

The most noteworthy gifts to this collection during the year were a mounted head of wide-horned White Sheep from Yukon Territory, Alaska, presented by Mr. Frederic C. Osborn; a world record mounted head of Osborn Caribou, presented by Mr. F. C. Havemeyer, from the White River Country, Western Yukon Territory, Alaska; also a fine pair of antlers of Osborn Caribou, presented by Mr. Frank Callbreath, Telegraph Creek, British Columbia.

#### LIBRARY

No very substantial increases have been made to the Library during the year, owing to the small fund available for this purpose. Small purchases have been made from time to time during the year, but until this fund is increased the question of the acquisition of more zoological works cannot be taken up seriously.

The library at present consists of 2,501 volumes.

#### PUBLICATION DEPARTMENT.

During 1912 the Sixteenth Annual Report, six numbers of the Bulletin, and the following numbers of Zoologica were issued: No. 8, "The Northern Elephant Seal," by Dr. Charles H. Townsend; No. 9, "Some Common Affections of the Respiratory and Digestive Organs Among Primates," by Dr. W. Reid Blair; No. 10, "New Blood Pheasants," by Mr. C. William Beebe; No. 11, "Feeding Habits of Serpents," by Mr. R. L. Ditmars.

Copies of Zoologica as issued are forwarded to members upon request.

#### PHEASANT MONOGRAPH.

Mr. C. William Beebe has returned from a thorough study of the material in the British Museum and elsewhere, in England and the Continent, for use in his Monograph on Pheasants, the preparation of which, and its illustration, is progressing rapidly.

A contract has been entered into with Witherby & Company, publishers, London, for the publication of this important work.

This publication will consist of four volumes quarto size, about 130 pages each, with a total of about 170 plates, of which 90 will be colored plates. The issue is limited to 600 copies and will be sold by subscription at \$250. No expense has been spared in the preparation of the illustrations and the text, and the monograph, when finished, will be worthy of a place beside the finest works that have appeared on the birds of the world.

#### FORESTRY DEPARTMENT, AND NEW CONSTRUCTION.

The work of this department is continually increasing, and during 1912 the usual care of the grounds, trees, shrubs and other plants, as well as the upkeep of walks, fences, cages, buildings, drainage, water and sewage systems, were taken in charge. In addition to this the regulating of picnic crowds and the policing of the Park has proved an important branch of the work of this department. During the year about 4,000 picnickers were taken care of. The usual work was maintained in the prevention of infection of trees, prevention of fire, usual breeding of poultry, the repairing of existing buildings and installations, rearrangement of planting in Bird Valley, small permanent installations, including eight show cages and fourteen breeding cages; raising bottom of Sea Lion Pool three feet, to facilitate cleaning and to save water; a great amount of grading and resurfacing of roads and walks with macadam; cleaning and repaving with broken stone of bottom of Beaver Pond; also a great deal of draining, filling and grading work on the east side of the river in regions which have never been touched before.

#### BRONX RIVER PARKWAY.

One of the most important events in the history of the Society has been the authorization by the Board of Estimate and Apportionment on July 15, 1912, of the Bronx River Parkway. This plan is in charge of a State Commission of which the Chairman of this Committee, Mr. Madison Grant, is president, and of which Mr. William W. Niles is also a member. The third commissioner is Mr. James G. Cannon, President of the Fourth National Bank. The entire erosion valley of the Bronx River, from the north end of Bronx Park to Kensico Reservoir, is to be turned into a park, and the waters of the

Bronx protected from pollution. This secures for all time the water supply of Bronx Park.

On November 28, 1912, Governor John A. Dix reappointed Mr. Grant as a member of the Commission for a period of five years from July 25, 1912, leaving the personnel of the Commission unchanged.

#### GAME PROTECTION.

During the campaign for the protection of wild life in 1912, the influence of the Society has been strongly exerted in New Jersey, Massachusetts, Louisiana and Montana, and several important victories have been won. Your committee feel that the importance of this work can hardly be over-estimated, but the Society is without adequate funds for its proper prosecution.

Your committee has also assumed the expense of the publication and distribution of a book written by Dr. William T. Hornaday, Director of the Zoological Park, entitled, "Our Vanishing Wild Life." This book contains above four hundred pages, and deals, by means of statistics and pictures, with the former abundance, present number and the means of preserving our existing wild mammals and birds. The initial cost is \$8,500. It is intended to print about ten thousand copies and distribute them free to all members of the Federal Congress and the legislatures of each state, as well as game commissions and other officers interested in the preservation of wild life. Your committee is endeavoring to secure contributions to assist in the publication and distribution of this very important document. A generous subscription of \$1,000 has been received from Mrs. Russell Sage for this purpose, and many others are needed to assist in this work, which has been a labor of love on the part of Dr. Hornaday.

Largely through the influence of Dr. Hornaday, the matter of purchasing the whole of Marsh Island, Louisiana, and establishing it as a game sanctuary, was properly brought to the attention of Mrs. Russell Sage, with the result that she supplied the entire amount necessary for the purchase of that island, viz., \$150,000. The island has 65 miles of coast line, and a total area of 75,000 acres.

A special subscription of \$300 has been received from Miss Serena Rhinelanders for use in the preservation of bird life, which is being expended in aid of the bill for the Federal protection of migratory birds now before Congress.

The Society has also presented to the American Bison Society a nucleus herd of ten American Bison for the new national bison range in southwestern South Dakota, in Wind Cave National Park, delivery to be made as soon as the area has been properly fenced.

#### BOARD OF MANAGERS.

The Eighteenth Annual Meeting of the Society was held at the Hotel Waldorf-Astoria on January 9, 1912, and was attended by a total of 690. At this meeting the following Managers were elected to the Class of 1915:

Levi P. Morton	Henry A. C. Taylor
Andrew Carnegie	Hugh J. Chisholm
John L. Cadwalader	Frank K. Sturgis
Madison Grant	George J. Gould
William White Niles	Ogden Mills
Samuel Thorne	Lewis Rutherford Morris

On December 5th, 1912, your committee, under authority conferred by the By-Laws, elected Mr. Archer M. Huntington to the Board of Managers, Class of 1915, to fill the vacancy caused by the death of Mr. Hugh J. Chisholm.

The Third Annual Dinner of the Board of Managers was given by Mr. Percy R. Pyne, on Thursday, February 22, 1912.

The Spring Meeting of the Board of Managers was held at the Administration Building in the Park, on Monday, May 20th, 1912. Informal reports were made by the Chairman of the Executive Committee and the Directors of the Park and Aquarium.

Upon the invitation of Mr. Frank K. Sturgis, the Fourth Annual Dinner will be held at his residence, on Wednesday, February 19, 1913.

#### RECEPTIONS.

The Ladies' Auxiliary held a reception at the Park on May 13, 1912, arousing great interest in the work of the Society and the Park. Folders have also been sent out by the Ladies Auxiliary, and many new members have been secured.

On May 20, 1912, an informal reception was tendered the members of the Society at the Administration Building. Many members were present, and an enjoyable time was had by all.

On June 6, 1912, an informal reception was tendered to a selected list of sportsmen interested in the work of the Society. Refreshments were served, and the collection of heads and horns inspected.

The following is a calendar of events for the year 1913:

Meetings, Board of Managers:

Annual Meeting	Annual Dinner
January 21, 1913.	February 19, 1913.

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Park Meeting  
May 19, 1913.

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Meetings, Executive Committee

January 2, 1913	May 1, 1913
February 6, 1913	June 5, 1913
March 6, 1913	October 2, 1913
April 3, 1913	November 6, 1913
December 4, 1913.	

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Annual Meeting of Society  
January 14, 1913.

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Ladies' Day	Members' Day
May 8, 1913.	May 19, 1913.

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ACKNOWLEDGMENTS.

The relations with all departments and officials of the City's government, and especially with the Park Department, have continued to be most cordial, and the Committee is greatly indebted to these officials, as well as the members of the Board of Estimate and Apportionment, for their support and co-operation during the past year.

The directors of the Park and the Aquarium, and their respective staffs, have been most zealous and energetic in the performance of their duties, and the Society enters upon this new year with the assurance of an ever-increasing sphere of activity and usefulness.

All of which is respectfully submitted,

MADISON GRANT, *Chairman.*

PERCY R. PYNE,  
SAMUEL THORNE,  
WILLIAM WHITE NILES,  
LEVI P. MORTON,

WM. PIERSON HAMILTON,  
FRANK K. STURGIS,  
LISPENARD STEWART,  
HENRY FAIRFIELD OSBORN,  
*Ex-officio.*

# Resolution

of the

Executive Committee of the Board of Managers  
of the New York Zoological Society  
passed October 8, 1912.

## Mr. Hugh J. Chisholm

who ~~Died~~ in the City of New York, July 8, 1912, was elected a Patron of the Society on December 13, 1899, and a Founder on January 4, 1912, also a member of the Board of Managers on January 9, 1900, and remained a member until his death, Class of 1915.

The Executive Committee of the Board of Managers of the New York Zoological Society learn with deep regret of the death of Mr. Hugh J. Chisholm, a member of the Board of Managers since 1900.

From the time of the early development of the New York Zoological Park, when interest and support were most needed, Mr. Chisholm always displayed the keenest interest in the great undertaking and readiness to assist in its development in every way. He attended all the meetings of the Board, and always expressed great pleasure in the progress of the work. His generosity and good will were a source of strength to the Executive Committee, and it is with a sincere sense of loss that this entry is made upon the minutes.



# Treasurer's Reports

FOR THE YEAR ENDING DECEMBER 31, 1912.

## Income Account

Schedule I.

Unexpended Balance as at December 31st, 1911,

*Cash in Bank:*

Available for expenditure during 1912 .....	\$3,529.83	
Received from Sustaining Members in advance for the year 1913 .....	600.00	\$4,129.83

*Investments:*

New York, Lackawanna & Western Terminal 4% Bonds .....	\$8,910.00	\$13,039.83
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### INCOME FOR YEAR.

Annual Dues .....	\$15,450.00	
Sustaining Membership .....	2,810.00	
Special Subscriptions .....	1,320.00	
Aquarium Publications, (Sales) .....	17.60	
Interest received and accrued .....	504.53	
Transfer from Endowment Fund Income Account .....	15,500.00	35,632.13

\$18,671.96

### EXPENDITURES FOR YEAR.

Annual Report and separates .....	\$1,728.75	
Bulletin .....	2,670.74	
Photographs and slides .....	910.50	
Mailing circulars .....	922.11	
Zoologica .....	791.54	
Cost of distribution of publications .....	406.04	
Expenses, Annual Meeting .....	620.00	
Expenses of receptions .....	812.22	
Treasurer's office expenses .....	718.25	
General office expenses .....	2,646.56	
Salary of Secretary .....	5,000.00	
Stationery, printing and office supplies .....	1,353.15	
Audit of accounts .....	575.00	
Employer's insurance .....	690.70	
Aid to employees .....	184.50	
Aquarium expenses .....	120.00	
Aquarium specimens .....	1,350.03	
Heads and horns (publications and labels) .....	105.00	
Game protection .....	1,423.35	
Engineering expenses .....	765.00	
Special equipment in Administration Building .....	1,273.72	
Miscellaneous expenses .....	2,053.04	
Models for Zebra House .....	40.00	
Aquarium surveys, models, etc. ....	1,999.33	
Salary of Assistant Secretary .....	333.28	
Insurance .....	187.50	
Our Vanishing Wild Life .....	3,500.00	
Aquarium Fund .....	121.33	
City Fund .....	2.40	\$33,304.04

*Carried forward* ..... \$33,304.04

<i>Brought forward</i> .....	\$33,304.04	
Unexpended Balance as at December 31, 1912,		
<i>Cash in Bank</i> .....	7,394.59	
<i>Investments:</i>		
New York, Lackawanna & Western Terminal 4% Bonds. (One Bond sold during year for \$990) .....	7,920.00	
Accrued interest on bonds .....	53.33	7,973.33
H. R. MITCHELL, <i>Chief Clerk.</i>		\$48,671.96
January 1, 1913.	PERCY R. PYNE, <i>Treasurer.</i>	

**Maintenance Fund**

## Schedule 2.

## RECEIPTS.

Received from the City account Maintenance Appropriation of \$182,365.00 for the year .....	\$161,902.72	
Due from the City on account of Maintenance .....	17,504.41	
Balance .....	2,957.87	\$182,365.00

## EXPENDITURES.

Maintenance of buildings and care of collections .....	52,265.69
Maintenance and care of grounds .....	41,725.04
General administration .....	22,323.74
Food for animals .....	36,932.30
Fuel .....	8,525.72
Tools and hardware .....	1,973.89
Lumber .....	1,437.47
Paints and oils .....	1,560.56
Electric service .....	1,589.18
Vehicular Transportation .....	1,350.00
Uniforms and badges .....	1,302.74
Telephone Service .....	746.96
Office supplies and printing .....	844.19
Miscellaneous supplies .....	708.77
Postage and Telegraph .....	693.60
Janitors' supplies .....	646.66
Plumbing supplies .....	635.48
Freight and express .....	533.27
Sanitation .....	524.98
Lubricating and fuel oils .....	403.82
Sand and cement .....	391.38
Furnace repairs and replacements .....	254.30
Drugs and medicines .....	220.67
Fencing and netting .....	191.93
Medical attendance, (employees) .....	189.00
Signs and labels .....	181.00
Rubber Hose .....	164.11
Repairs .....	144.87
Ice .....	143.55
Office Furniture and fixtures .....	130.00
Horses and vehicles .....	121.30
Nursery supplies .....	91.23
Park baskets .....	90.00
Nursery stock and seeds .....	87.94
Electrical supplies .....	75.69
Awnings and shades .....	47.00
Glass and glaziers' supplies .....	61.64
<i>Carried forward</i> .....	\$179,309.67

<i>Brought forward</i> .....	\$179,309.67	
Stable supplies and repairs .....	44.20	
Surgical instruments and appliances .....	36.73	
Engineering supplies .....	12.03	
Mats and floor coverings .....	4.50	
Balance .....	2,957.87	\$182,365.00

H. R. MITCHELL,  
*Chief Clerk.*  
 January 15, 1913.

PERCY R. PYNE,  
*Treasurer.*

### Ground Improvement Fund

#### Schedule 3.

#### SHOWING STATUS OF APPROPRIATION No. 5.

Unexpended balance of Appropriation of No. 4 brought forward .....	\$3,099.78
Reductions on various contracts, old account .....	1,416.96

#### RECEIPTS.

Appropriated by Board of Estimate and Apportionment:		
Available, July, 1908 .....	\$ 65,000.00	
Available, August, 1909 .....	10,000.00	
Available, August, 1910 .....	84,500.00	
Available, October, 1911 .....	155,000.00	314,500.00
Premium on bonds to December 31, 1912 .....		1,260.02

#### EXPENDITURES.

\$320,276.76

#### *By the Zoological Society:*

Baird Court Boundary and Concourse .....	\$ 408.68	
Crematory and fuel shed .....	489.76	
Axis and Sika Deer fences .....	1,337.63	
Guard Rails .....	2,035.79	
Boundary fences .....	3,303.58	
Elephant House walks and yards .....	1,797.94	
Forestry and planting .....	16,615.43	
Miscellaneous .....	8,672.81	
West Farms Block .....	1,066.56	
New walks .....	8,623.65	
Llama yards .....	377.48	
Reconstruction of walks .....	4,187.71	
Filling Duck Aviary .....	572.10	
Boston Road Public Comfort Station .....	10.00	
North end of Baird Court .....	947.61	
Public Comfort Station, Elephant House .....	1,978.20	
Zebra and Wild Horse installation .....	2,638.28	
Small Deer House walks and yards .....	324.25	
Polar Bear Den .....	975.19	
New Bear Dens .....	466.13	
Administration Building .....	318.83	
Eagle and Vulture Aviary .....	935.53	
Beaver Pond .....	1,748.36	
Buffalo fence .....	530.00	
Sea Lion pool .....	579.79	
Bronxdale Bridge .....	1,476.79	
Zebra House yards .....	4,568.09	
Temporary sheds, Service Yards .....	1,067.16	
Pelican House .....	228.00	
Yak shelter .....	241.00	68,522.33

*Carried forward* ..... \$68,522.33

<i>Brought forward</i> .....		\$68,522.33
<i>By the Zoological Society through Park Department:</i>		
Reconstruction of walks .....	\$ 4,519.62	
Forestry and planting .....	12,277.74	
Elephant House walks and yards .....	1,809.58	
Boundary fences .....	323.58	
Guard rails .....	780.81	
New walks .....	3,774.38	
Miscellaneous .....	2,938.33	
West Farms Block .....	35.50	
Llama yards .....	122.52	
Small Deer House yards .....	191.00	
Axis and Sika Deer fences .....	362.37	
Crematory and fuel shed .....	110.24	
North end of Baird Court .....	577.39	
Electric conduit .....	760.95	
Public Comfort Station, Elephant House .....	164.80	
Zebra and Wild Horse installation .....	879.44	
Furnishings and fittings for Administration Building .....	1,702.29	
Polar Bear Den .....	366.20	
New Bear Dens .....	193.25	
Administration Building .....	2,281.68	
Beaver Pond .....	506.80	
Sea Lion pool .....	362.45	
Temporary sheds, Service Yards .....	398.15	
Bronxdale Bridge .....	85.61	
Zebra House yards .....	2,252.69	
Concourse and Baird Court approach .....	581.15	
Buffalo fence .....	410.05	
Pelican House .....	343.80	39,112.37
<i>Through Park Department:</i>		
Contract, J. F. Walsh & Bro., Public Service Building .....	\$ 29,230.00	
Contract, Knight & De Micco, excavating rock .....	877.50	
Contract, Jos. Balaban, Zebra House .....	25,181.00	
Contract, Geo. Hildebrand, Eagle and Vulture Aviary .....	18,867.00	
Contract, H. F. English, Public Comfort Station, Elephant House .....	10,357.00	
Contract, Abraham & Straus, Furnishing Administration Building .....	7,544.26	
Contract, Repairing Bronx River Dam .....	6,514.00	
Contract, Construction of Bear Dens .....	7,777.00	
Contract, Granite Coping, Baird Court .....	772.00	
Contract, Terra Cotta Work, Zebra House .....	1,565.00	
Contract, Change in brick work, Zebra House .....	1,247.00	
Contract, A. V. Johnson & Co., Work Shops .....	23,895.00	
Contract, Jos. E. Dobbs, Pelican House .....	4,045.00	
Contract, Jos. Balaban, Addition to Restaurant .....	3,900.00	
Miscellaneous expenditures through Park Department .....	5,677.61	
Claim of J. V. Schaefer, Jr., Co., allowed by Finance Department for extra on Administration Building .....	1,409.86	148,859.23
<i>Carried forward</i> .....		\$256,493.93

Brought forward .....	\$256,493.93	
Balance available for expenditure, December 31st, 1912.....	63,782.83	
	<hr/>	\$320,276.76

H. R. MITCHELL,  
*Chief Clerk.*  
 January 1, 1913.

PERCY R. PYNE,  
*Treasurer.*

### Animal Fund

Schedule 4.

Unexpended balance as at December 31, 1911:

Cash in Bank .....	\$32,905.34	
Cash on hand .....	100.00	\$33,005.34

Income from January 1, 1912, to December 31, 1912:

#### Special Subscriptions:

The Junior League .....	150.00	
Admissions .....	11,838.40	
Checking .....	45.20	
Sale of Animals .....	1,280.00	
Miscellaneous .....	80.30	13,393.90
	<hr/>	\$46,399.24

#### EXPENDITURES.

Mammals .....	\$21,388.86	
Birds .....	7,472.28	
Reptiles .....	1,388.80	
Insect Collection .....	249.67	30,499.61
	<hr/>	
Express and other charges .....	1,278.58	
Travelling and other expenses .....	2,810.39	4,088.97

Unexpended balance as at December 31, 1912:

Cash in Bank .....	\$11,710.66	
Cash on hand .....	100.00	11,810.66
	<hr/>	\$46,399.24

H. R. MITCHELL,  
*Chief Clerk.*  
 January 1, 1913.

PERCY R. PYNE,  
*Treasurer.*

### Stokes' Bird Fund

Schedule 5.

Unexpended balance as at December 31, 1911:

Cash in Bank .....	\$ 209.88	
Investment: Illinois Central Railway 4% Gold Bonds .....	5,056.46	5,266.34
	<hr/>	
Interest received and accrued .....		240.14
	<hr/>	\$5,506.48

#### EXPENDITURES FOR YEAR.

Donations towards preservation of bird life .....	\$	300.00
Unexpended balance as at December 31, 1912:		
Cash in Bank .....	\$ 116.69	
Investment: Illinois Central Railway 4%		
Gold Bonds .....	5,056.46	\$5,173.15
	<hr/>	
Accrued interest on Bonds .....	33.33	5,206.48
	<hr/>	
Carried forward .....		\$5,506.48

Brought forward ..... \$5,506.48

\$5,506.48

H. R. MITCHELL,  
Chief Clerk.  
January 1, 1913.

PERCY R. PYNE,  
Treasurer.

### National Collection of Heads and Horns

#### Schedule 6.

Unexpended balance as at December 31, 1911:

Cash in Bank ..... \$ 27.64

#### INCOME FOR YEAR.

##### Special Subscriptions:

Jacob H. Schiff .....	\$100.00	
W. Frazer Gibson .....	5.00	
A. St. John Newberry .....	5.00	
John T. Pirie, Jr. ....	5.00	
Wm. R. Coe .....	10.00	
John J. Paul .....	15.00	
George Shiras, 3rd .....	10.00	
W. H. Chase .....	5.00	
Henry A. Caesar .....	5.00	
Archibald Rogers .....	5.00	
M. F. Westover .....	3.00	
G. M. Laughlin, Jr. ....	5.00	
Townsend Lawrence .....	10.00	\$183.00

Interest ..... .30 183.30

Overdraft, December 31, 1912 ..... 241.00

\$451.94

#### EXPENDITURES FOR YEAR.

Heads and Horns .....	\$ 388.15	
Express and other charges .....	63.79	\$451.94

H. R. MITCHELL,  
Chief Clerk.  
January 1, 1913.

PERCY R. PYNE,  
Treasurer.

### Library Fund

#### Schedule 7.

Unexpended balance as at December 31, 1911:

Cash in Bank ..... \$1,081.61

#### INCOME FOR YEAR.

##### Special Subscription:

Jacob H. Schiff .....	\$250.00	
Interest .....	20.63	270.63

\$1,352.24

#### EXPENDITURES FOR YEAR.

Books, pamphlets, etc. ....	\$903.08	
Subscription to periodicals .....	86.20	
Express and other charges .....	42.27	\$1,031.55

Unexpended balance as at December 31, 1912:

Cash in bank ..... 320.69

Carried forward ..... \$1,352.24

Brought forward ..... \$1,352.24

\$1,352.24

H. R. MITCHELL,  
Chief Clerk.  
January 1, 1913.

PERCY R. PYNE,  
Treasurer.

### Aquarium Maintenance Fund

#### Schedule 8.

##### RECEIPTS.

Received from the City, account Aquarium Maintenance		
Appropriation of \$48,500.00 for the year.....	\$37,310.20	
Due from City on account of Aquarium Maintenance.....	9,286.88	
Unexpended balance .....	1,902.92	\$48,500.00

##### EXPENDITURES.

Pay Rolls .....	\$32,595.63	
Coal .....	4,620.27	
Telephone .....	174.05	
Electric Light .....	855.28	
Ice .....	98.35	
Uniforms .....	140.10	
Cartage .....	280.50	
Stationery and Books .....	398.39	
Fish Food .....	2,055.49	
Incidental Expenses (office) .....	85.87	
Furniture .....	45.00	
Contingencies .....	291.72	
General Supplies .....	2,756.34	
Repairs and Replacements by Contract or Open Orders...	1,317.54	
Gas .....	882.55	
Unexpended balance .....	1,902.92	\$48,500.00

ROBERT SUTCLIFFE,  
Clerk.

PERCY R. PYNE,  
Treasurer.

### Aquarium Improvement Fund

#### Corporate Stock, C. D. P. No. 4.

##### Schedule 8-A.

Unexpended balance as at December 31st, 1911 ..... \$344.50  
No expenditures.

Balance available for expenditure, Dec. 31st, 1912 ..... \$344.50  
(Signed)

MORRIS MAYER,  
Bookkeeper, Department of Parks,  
Manhattan and Richmond.

**Endowment Fund**

Schedule 9.

Funds as at December 31, 1911:

Cash in Bank .....	\$ 19,566.52	
Investments at cost .....	264,952.50	
Balance due by Endowment Fund Income Account.....	343.78	\$284,862.80

*Endowment Fund:*

Estate of Edward Russ .....	\$ 5,000.00	
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*Special Subscription:*

Edward S. Harkness .....	5,000.00	10,000.00
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Life Membership Subscriptions .....		2,800.00
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\$297,662.80

Funds at December 31, 1912:

*Investments at cost:*

\$20,000 Westchester Racing Association 5% First Mortgage Bonds .....	\$ 20,000.00	
3,000 Second Mortgage, Clara N. Gibert and others, 6% over land and buildings, Broadway and 17th Street .....	3,000.00	
5,000 Colorado & Southern 4% Bonds .....	4,750.00	
5,000 Michigan Central R. R. Co. 4% Bonds.....	4,950.00	
10,000 New York City 1957 4% Corporate Stock.....	9,925.00	
10,000 St. Paul, Minneapolis & Manitoba 4% Bonds.....	9,800.00	
50,000 U. S. Steel Sinking Fund 5% Bonds.....	51,812.50	
50,000 American Telephone & Telegraph 4% Bonds.....	45,000.00	
25,000 Rhode Island Suburban Ry. Co. 4% Bonds.....	21,250.00	
20,000 New York City 1958 4% Corporate Stock.....	19,875.00	
10,000 New York City 1957 4% Corporate Stock.....	9,962.50	
10,000 New York City 1958 4% Corporate Stock.....	9,962.50	
20,000 Chicago & Northwestern Ry. Co. General Mortgage 4% Bonds .....	19,750.00	
20,000 Vandalia Railroad Co. Consolidated Mortgage 4% Bonds .....	19,100.00	
5,000 Missouri & Illinois Bridge & Belt R. R. Co. 1st Mortgage 4% Bonds .....	5,000.00	
10,000 Chicago, Milwaukee & Puget Sound, 1st Mortgage 4% Bonds .....	9,525.00	
2,000 New York, Lackawanna & Western 4% Terminal Improvement Bonds .....	1,980.00	
20,000 Milwaukee, Sparta & Northwestern 1st Mortgage 4% Bonds .....	18,900.00	
7,000 Chicago, Milwaukee & Puget Sound, 1st Mortgage 4% Bonds .....	6,562.50	
5,000 Chicago, Milwaukee & Puget Sound, 1st Mortgage 4% Bonds .....	4,687.50	\$296,092.50

Cash in Bank .....	1,226.52	
Balance due by Endowment Fund Income Account.....	343.78	

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\$297,662.80H. R. MITCHELL,  
*Chief Clerk.*PERCY R. PYNE,  
*Treasurer.*

January 1, 1913.



**Endowment Fund Income Account**

Schedule 10.

Unexpended balance as at December 31, 1911:

Cash in Bank .....	\$	6,826.94
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## INCOME FOR YEAR.

Interest collected from Endowment Fund

Investments .....	\$12,715.46
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Interest accrued on Endowment Fund In-

vestments .....	4,141.67	\$16,857.13
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Less, Due to Endowment Fund .....	343.78	16,513.35
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	\$23,340.29
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## EXPENDITURES FOR YEAR.

Transferred to Income Account .....	\$15,500.00
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Transferred to Endowment Fund accrued interest on bonds at time of purchase .....	236.33
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Unexpended balance as at December 31, 1912:

Cash in Bank .....	\$3,806.07
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Accrued interest on Endowment Fund In-

vestments .....	4,141.67	\$7,947.74
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Less, Due to Endowment Fund .....	343.78	7,603.96
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	\$23,340.29
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H. R. MITCHELL,

*Chief Clerk.*

January 1, 1913.

PERCY R. PYNE,

*Treasurer.*

### Auditors' Certificate

We have audited the books and accounts of the New York Zoological Society for the year ended December 31, 1912, and certify that the foregoing Schedules "1" to "10" are in accordance with the books, and, in our opinion, correctly record the transactions relating to the funds of the Society for the year, and the condition of the various funds as at December 31, 1912. Schedule "3" includes records of expenditures amounting to \$39,112.37 and \$148,859.23 made through the Park Department of the City of New York. We have not verified the expenditures so made, but we have incorporated them in the statements submitted so that these may be complete. The subscriptions, donations and dues reported as received have been properly accounted for, and the securities and cash in bank and on hand at December 31, 1912, as shown in the accounts of the funds presented herewith, were all duly checked and found in order.

MARWICK, MITCHELL, PEAT & Co.,  
*Chartered Accountants.*

79 Wall Street, New York,  
February 17, 1913.

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New York, March 19, 1913.

*The President and Board of Managers of  
The New York Zoological Society.*

Dear Sirs:

We beg to report we have examined the annual audit of the books and accounts of the New York Zoological Society for the year ending December 31, 1912, as made by Messrs. Marwick, Mitchell, Peat & Company, Chartered Accountants, and herewith submit the same to you as a complete and satisfactory audit of said books and accounts, all expenditures and receipts of the various accounts being clearly set forth and the cash on hand and at the various depositories having been verified and found correct, and all securities in which the funds of the Society are invested having been examined and found as reported.

Expenditures made through the Park Department of the City of New York have not been verified by this audit as such moneys have not passed through the hands of this Society, but are in due course checked and verified by the Comptroller of the City.

Respectfully submitted,

WILLIAM W. NILES,  
C. LEDYARD BLAIR,

*Committee.*

N. B.—This report is made in the absence, through illness, of Mr. Hugh D. Auchincloss, Chairman.



WATERFOWL AT REST ON THE ICE OF THE WILD FOWL POND



ADULT MALE BIG-HORN MOUNTAIN SHEEP (*Ovis canadensis*)  
From Yuma, Southern California

REPORT OF THE  
DIRECTOR OF THE ZOOLOGICAL PARK  
TO THE BOARD OF MANAGERS

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THE zoological parks of America are today handicapped by two very serious conditions. The first is the awful destruction of the world's finest wild animals, and the disappearance of desirable species from the list of availables. To this cause is directly due the partial or total absence from public wild-animal collections of the following species:

Passenger Pigeon	Rocky Mountain Sheep
Carolina Parakeet	European Bison
California Condor	White Rhinoceros
Andean Condor	Indian Rhinoceros
Roseate Spoonbill	Sable Antelope
Scarlet Ibis	Kudu
Flamingo	Leucoryx Antelope
Great Bustard	Thylacine
Greater Bird of Paradise	Wombat
Lesser Bird of Paradise	Manatee
Jobi Bird of Paradise	Beaver
Lyre Bird	Otter
Wild Turkey	Marten
Pinnated Grouse	Fisher
Willow Ptarmigan	Wolverine
Prong-Horned Antelope	

The second handicap on American zoological parks is the sweeping prohibition of the Department of Agriculture which forbids the importation of any ruminant animal, or any member of the swine family, coming from either Europe, Asia, Africa or South America. The effect of this wholesale slaughter of possibilities will, if the prohibition continues, soon begin to be visible to the public in empty cages; for even the best-kept hoofed animals are not immortal. It is indeed fortunate that the New York Zoological Park was heavily stocked with ruminant animals before the ban was laid on.

The fact that thus far no contagious disease ever has been brought into this country by a wild animal, seems to have no

effect on the situation. Neither is any length of healthful quarantine in Europe accepted as a mitigating circumstance.

#### RARITIES.

At the present hour, the park is particularly fortunate in the possession of a large series of zoological rarities of special value and importance.

In mammals we possess 3 Pygmy Hippopotami, a Pygmy African Elephant (type specimen), an Indian Rhinoceros, a herd of 6 Musk-Ox, a herd of 6 Rocky Mountain Goats, 4 *species* of Alaska Brown Bears, a Spectacled Bear, Andean black Bear, Mountain Zebra, Greater Kudu, Sable Antelope, European Bison, 2 adult Big-Horn Sheep rams, a Suleiman Markhor, 10 great Apes and an Atlantic Walrus.

In birds we possess the Secretary Bird, 3 California Condors, 2 Greater Birds of Paradise, Great Bustard, Concave-Casqued Hornbill, Carolina Parrakeet, Rifle Bird, Ocellated Turkey, Boat-Billed Heron and Black Cockatoo.

Of reptilian rarities the collection contains a Gavial, 2 Central American Crocodiles, a Bushmaster, 2 Fer-de-Lances and 4 Indian Cobras.

#### NOTABLE EVENTS.

The two notable events of the year 1912 were the completion of the Eagle and Vulture Aviary and the Zebra House, and the installation of their respective collections. The completion of these two long-awaited and very important features, and the planting of all the ground surrounding them, has completely transformed Bird Valley, and added to the Park an entire new section of commanding interest. Mr. Hermann W. Merkel, our chief constructor and forester, and his working force is entitled to great credit for the masterful manner in which the yards and fences of the Zebra House have been constructed,—wholly by our own force,—and the surrounding grounds beautified with great despatch. All this work again demonstrated the wisdom of having all specially difficult features of work on the grounds performed by our own force, under the personal supervision of our own officers. To other institutions like ours we heartily commend this plan over the contract system.

#### ATTENDANCE.

During the past year, our attendance of visitors showed a strong increase, and reached the highest figures that have yet

been attained. This result was reached in the regular course of development, and without any special effort on our part. Another year of increase equal to that of 1912, (226,550) will bring us very near to the two million mark. In view of our distance from the City's center of population, and the special effort that is required to reach the Park, we may accept our great and growing attendance as the best possible evidence of the keen interest of the masses in the study of living animals.

A full statement of our attendance is as follows:

	In 1912.	In 1911
January, .....	38,271	40,012
February, .....	75,752	70,797
March, .....	118,911	77,150
April, .....	136,689	119,867
May, .....	183,216	234,187
June, .....	266,294	151,681
July, .....	193,816	170,978
August, .....	228,964	146,519
September, .....	162,535	219,046
October, .....	155,105	113,005
November, .....	77,354	74,413
December, .....	71,548	64,250
Totals .....	1,708,455	1,481,905

#### GENERAL WELFARE.

On the whole, the year 1912 may be distinguished as one singularly free from accidents to employees, accidents to visitors and animal losses of importance. Of our 1,708,455 visitors not one received an injury of any kind in the Park. The number of deaths of animals large enough to be worthy of mention is the smallest in the history of the Park, and may well render us apprehensive that at some time in the future the age limit will even up by bringing a great many losses into one year. The only deaths worthy of mention were a zebra, a mountain goat, a markhor, a leucoryx antelope and our male European bison. The bison represented the most serious loss; but the leucoryx antelope robs us of a species that it will be difficult to replace, even when the embargo is lifted.

The only serious accident in the force was the attack of the adult male Indian elephant, "Gunda," on his keeper, Walter Thuman. For a considerable period that animal has been

mean, but his special keeper believed that ere he became so dangerous as to require leg-chains, the evidences of it would be apparent. On the contrary, Gunda's attack on Keeper Thuman came like a cyclone bursting from a clear sky, without provocation or the slightest warning. It was thoroughly murderous, and but for the fact that the crash of Gunda's breaking tusk attracted the attention of Keeper Richards as an unusual sound, and brought him rushing to Gunda's cage with a pitchfork, Thuman's injuries might have been even worse than they were.

Gunda was driven out of the building by Richards and his pitchfork. Keeper Thuman was badly bruised, and his left thigh was punctured twice by the elephant's tusk. Fortunately, the keeper's injuries were not fatal, and he is now on duty as usual. For the future, Gunda will be kept under control by leg-chains, in order that he may have no further opportunities to attempt wanton murder.,

#### RUBBISH.

Our struggle to prevent the throwing of waste paper and other disfiguring rubbish in the Park constitutes the irrepressible conflict. Here in New York we have to contend with a form of lawlessness and disorder that in some other American cities is totally absent. The wanton, persistent and thoroughly malignant disfigurement that is the daily curse of the parks of New York is—so far as I have seen and can learn by inquiry—almost unknown in the parks of Boston and Washington. Can it be that we have a percentage of meaner and more lawless people than are found in other cities?

The entire fault revealed in this disgraceful state of affairs is to be found in the police management of the public. It is within the power of any resolute police commissioner to stop rubbish-throwing in New York parks in one month of real effort in that direction, and that, too, without one cent of additional expense to the City. It can be broken up just as the foul spitting habit was broken up.

But no. In every New York park, every dirty-habited and lawless man, woman and child feels at liberty to do as he, she or it pleases. So far as I am aware, the strenuous effort against rubbish-throwing that we have been making during the past five years is not duplicated in any other park, at least to the extent of our effort. In this task, the assistance that we receive from the Police force is too small to mention. The disgusting liberty that is accorded elsewhere to rubbish-throwers,



both on the streets and in the parks, undoubtedly has a very bad influence on the criminal class, because it is a direct encouragement to lawlessness and crime. I have strongly appealed to the North Side Board of Trade, that this exasperating and disgraceful state of affairs be taken up by that body; but, while the Board listens sympathetically, and approves the idea, nothing whatever has yet been done. The situation is most unfair to the respectable, law-abiding people of New York.

#### PROTECTION OF WILD LIFE.

Circumstances which could not be ignored forced upon the Zoological Society during 1912 a great amount of hard labor in behalf of the better protection of wild life. The rage for the slaughter of the most interesting and valuable birds and quadrupeds that now is being manifested in fire and blood, all over the world, imposed upon this Society a burden that could not be evaded. The victories won in behalf of wild life in 1910 and 1911 seemed to indicate unmistakably that a sufficient amount of intelligent effort exerted now and in the near future in arousing the people of America to the seriousness of existing conditions might produce a genuine revolution in methods of protection, and result in great benefit to wild life and to mankind.

Accordingly the struggles that were waged in the legislatures of Massachusetts, New Jersey and Louisiana for sweeping changes in existing laws early enlisted the sympathy of the Society, and when direct appeals for aid came to the Society, they met with immediate and generous responses. It is no exaggeration to state that the Society contributed very substantially to the sweeping victories that finally were won in the three states mentioned. To Louisiana, the Society contributed two campaign visits by Mr. James S. Whipple, ex-Game Commissioner of the State of New York.

Early in the year the Director of the Zoological Park became convinced that much good to the general cause might result from the publication and general distribution to law-makers and others of a book of protest, exhortation and appeal in behalf of wild life. Accordingly, he wrote, entirely outside the hours of his official duties, and as his own contribution to the cause, a work entitled "Our Vanishing Wild Life; Its Extermination and Preservation." This volume, of 428 pages with 94 illustrations and 10 maps, was completed in October, and immediately the Chairman of the Executive Committee volunteered to provide, by

means of a special subscription, all the funds necessary to print the edition of 10,000 copies, and to place a copy in the hands of every law-maker, game commissioner, governor and state warden in the United States, and 500 editors.

The book was rushed through the press, and in January, 1913, it was distributed as indicated above. The total cost involved, including the really heavy item of distribution, was about \$10,000, all of which was almost instantly subscribed by the members of the Board of Managers, supplemented by a gift of \$1,000 from Mrs. Russell Sage and \$250 from Mrs. E. H. Harriman.

It is earnestly hoped that during the next two years the cause of wild animal life protection will gather so much additional strength, and make such revolutionary progress, that the officers of the Society will be able to satisfy their consciences in the matter with less labor than now is demanded by existing conditions.

#### DEPARTMENT OF MAMMALS.

W. T. Hornaday, Curator; Raymond L. Ditmars, Assistant Curator.

Throughout the year 1912 the status of the collection of mammals was unusually satisfactory. The records show a gratifying absence of accidents and important losses by death, a total absence of epidemic diseases, and the acquisition of a number of extremely desirable animals. The arrival of three pigmy hippopotami was a noteworthy event, and while the outlay involved in this purchase was quite large (\$15,000), the great interest manifested in these zoological rarities by the general public and the members of the Zoological Society seems to justify the purchase. These animals have been maintained in excellent physical condition, and their future with us is now regarded as measurably secure. There is good ground for the expectation that the young pair will breed as soon as they reach maturity. These very strange and even weird creatures seem to be of great interest to the public. The placing of a temporary bathing-tank for the adult male close behind the guard rail brings the animal very close to visitors, and renders it specially available for inspection. The appetites of all three animals are excellent, and they devour with great relish what seems like a large quantity of green vegetables, bread and fruit.

After at least ten years of more or less continuous effort to secure at least one adult male Rocky Mountain big-horn sheep that would satisfactorily represent that fine species, we were

successful in securing in the month of December two fine specimens. One came from the Canadian Rockies, and the other from the mountains near Yuma, southern California. In view of the late arrival of these animals, it was found advisable to quarter them for the winter of 1912-13 in the new Zebra House, which is well adapted to their needs.

The greater kudu, usually regarded in Europe as a delicate animal, and difficult to keep alive on exhibition, continues to enjoy perfect health. It has developed very satisfactorily, and the only difficulty with it is the same kind that is encountered in nearly every male African antelope,—an insatiable desire to wear its horns down to its head.

Special attention is called to the Alaskan brown bear, of an unnamed species, from the Kobuk River, Alaska, 300 miles southwest of Point Barrow. This animal is rapidly increasing in size, and it seems likely to attain great proportions. The Alaskan giant brown bear known as "Ivan" is one of the largest bears in captivity. Naturally it attracts much attention. The spectated bear from Quito, Ecuador, is in good health.

A Tasmanian wolf, or thylacine, was purchased of the Zoological Society of London, but while it arrived in good health, it was so nervous and unreconciled to captivity that it lived only a few months.

The occurrences of the past year have forced us to another disappointing conclusion regarding our North American hoofed animals. Our last effort to induce the prong-horned antelope to live and breed in captivity in New York City has failed, just as all our previous efforts have failed. We are now disposed to accept the result of ten years experimenting as final in regard to that species. In the first, and most important, place it seems impossible to procure stock that is not afflicted with lumpy-jaw. Three good specimens in our possession during 1912 developed that incurable disease soon after their arrival, and quickly died of it. That was the fourth time that this disease was brought to the Park by prong-horned antelopes. We are now resolved that it will also be the last. So far as we know, the prong-horn cannot live in captivity, outside of its home country, and not always can it do so, even on its own ground. At best it is a delicate animal, with little physical stamina, and it easily succumbs to adverse circumstances, whatever they may be.

The extent to which the wild herds seem to be afflicted with lumpy-jaw is very disquieting. We may well ask: Will that disease finish the extermination of the species? It is reported

that in spite of general protection in the United States, the bands of antelope are steadily diminishing. Undoubtedly this is largely due to illegal slaughter. So far as the Zoological Park is concerned we are reluctantly compelled to class the prong-horn with the impossible moose and caribou, and resolve to procure no more of them.

Among the gifts of the year 1912 were a young polar bear, from Mr. S. Osgood Pell, and a young grizzly bear. The latter animal was the gift of Mr. N. K. Luxton, of Banff, Alberta. It was captured in the Brazeau Country, which is north of the North Fork of the Saskatchewan River, northwestern Alberta. This is our only representative of the species from that region. A fine young Kadiak bear came as the gift of the Junior Auxiliary of the New York Zoological Society, and Mr. Harry Whitney and Captain Robert B. Bartlett presented 5 young hooded seals.

Other important accessions of mammals during the year were the following:

Two sphinx baboons, two long-armed baboons, one hamadryas baboon, a fine pair of Bengal tigers, one cheetah, one Arctic fox, two pandas, five sea lions, three pygmy hippopotami, four prong-horn antelopes, one South American deer, one male fallow deer, four Rocky Mountain goats, two Tasmanian devils and one Tasmanian wolf.

The following is a list of the important births during the past year:

8 American Wapiti	4 Axis Deer
4 White-Tailed Deer	5 Fallow Deer
3 Sika Deer	4 American Bison
1 Hog Deer	1 Aoudad
2 Malay Sambar Deer	4 Red Deer
1 Eld's Deer	1 Barasingha Deer
1 Congo Sitatunga	1 Sea Lion
2 Himalayan Tahr	2 Syrian Bears
2 Mongolian Wild Horses	1 Ring-Tailed Lemur
5 Raccoons	

The following mammals were sold:

1 Polar Bear	5 Red Deer
2 Hybrid (Syr. Black) Bears	7 Fallow Deer
1 Hybrid (Hairy-Eared Russian) Bear	4 Sika Deer
	1 Axis Deer
3 Raccoons	1 Indian Sambar Deer

5 Elk	1 Indian Antelope
2 White-Tailed Deer	1 Aoudad
2 Florida Deer	

The first part of the winter of 1912-13 was so mild and free from the cold rains that usually render New York winters so hard to endure, that our mammals were kept out to an extent that ordinarily is impossible.

A full census of the mammal collection, made on December 31, 1912, when all our collections are noticeably smaller than in mid-summer, is as follows:

## MAMMALS OF THE ZOOLOGICAL PARK

December 31, 1912.

*(Osborn's Classification.)*

	Species.	Specimens.
Marsupialia .....	7	15
Edentata .....	2	3
Carnivora .....	53	124
Pinnipedia .....	2	2
Rodentia .....	41	163
Primates .....	33	84
Artiodactyla (Even-Toed Ungulates)...	58	276
Perissodactyla (Odd-Toed Ungulates)...	10	16
Proboscidea .....	3	5
Hydracoidea .....	1	1
Total .....	210	689

## REPORT OF THE VETERINARIAN ON THE MAMMALS.

By W. Reid Blair, D.V.S.

The health of the mammals during the past year has been unusually good. While there have been the usual number of medical and surgical cases, the affections have for the most part been of a less serious nature, and more easily corrected than we usually expect.

*Gastro-enteritis.*—We are glad to report that there have been *no cases* of this disease among the larger hoofed animals during the past year. This is the first time in twelve years that we have been absolutely free from this disease for twelve months in succession. It is to be noted that for a number of years it has not been very troublesome. The elk and bison herds which in previous years suffered from this disease are now in better condition than ever before.

*Enteritis* is a common affection occurring among the small mammals, especially the carnivores. Keeper Max Lansberg of the Small-Mammal House is much interested in this disease, and has been very helpful in studying the effect of various foods on the sensitive digestive organs of these animals under his immediate care.

*Tuberculosis*.—While this disease has, for a considerable number of years, been an unimportant factor in the death rate, yet during the past year it has caused the loss of several animals. All but two of these deaths occurred outside the primate collection to which, heretofore, it had been confined almost exclusively. During the spring a number of hooded seals, the gift of Mr. Harry Whitney, were deposited in the Park. Within a few weeks all of them died, and in each case they were found to have suffered from either generalized or pulmonary tuberculosis. As these animals were captured less than four weeks before their arrival at the Park, these cases are important,—showing that they must have become affected while still in arctic waters, where previously it has been entirely unknown among wild animals. We also lost a female Bengal tiger from pulmonary tuberculosis. This animal had been in the collection for about ten years. There were also two unimportant cases in the primate collection during the year.

*Actinomycosis*.—There have been three cases of this dreaded disease among the prong-horn antelopes. One case occurred before the animal was placed on exhibition, and while still in quarantine. This animal showed extensive lesions of the jaws and stomach. It seems impossible to keep these animals on account of their great susceptibility to infection of lumpy-jaw or actinomycosis. The present introduction of this dreadful and incurable disease was the fourth time that it has been brought to this Park by prong-horn antelopes.

*Distemper*.—There were two cases of distemper among the small carnivores in the small-mammal collection. These animals were new arrivals, and with highly commendable vigilance the keeper detected the condition of the animals in the early stages of the disease, thus preventing the spread of the infection to other animals in the collection.

*Parasitic gastritis* and *enteritis* has not given us much trouble for a number of years, although we find that a large percentage of the newly arrived animals harbor various intestinal parasites.

*Pneumonia*.—While there have been a number of pure or uncomplicated cases of pneumonia, the disease is more frequently seen as a complication of some other more debilitating disease, or following as a terminal affection, in animals suffering from malnutrition.

#### UNUSUAL DISEASES.

*Uraemic poisoning* caused the death of our male European Bison. One of our Suleiman markhor died as a result of *necrotic inflammation of the bladder*, caused by a fungus, or food toxemia.

A most annoying death was that of a two-year-old Grant zebra, born in the Park, which was violently attacked in the middle of the night and died before daybreak of *acute flatulent indigestion*. A young polar bear died from *fish poisoning*.

*Cage paralysis*.—A few cases of this disease occurred in the primate collection during the year, chiefly, however, in animals that had been in captivity a number of years, and had only recently been acquired by us as gifts.

One acute case developed in a green monkey that had been in our collection for about five years.

There were several deaths of small mammals from unavoidable accidents, and fighting with cage-mates. This latter condition occurs more frequently among the animals of the small-mammal collection and in the fox dens, than elsewhere.

A Malay sambar deer broke its leg and had to be destroyed—and a two-year-old Eld's deer met with a similar accident and had to be chloroformed.

Each year a few mammals which have been in captivity for a number of years have to be destroyed because they are no longer fit for exhibition purposes on account of age or malnutrition. Quite frequently monkeys are received as gifts which on examination are found physically unfit for exhibition and are destroyed while still in quarantine quarters. It is a common thing to receive "pet" monkeys,—most reluctantly given up,—that are ready to die of cage paralysis!

A few young hoofed animals are lost each year on account of births occurring during the winter season. These losses are chiefly among animals like the axis deer that are upon the ranges at all seasons of the year, and are too nervous and excitable to be closely confined.

Many unsuccessful attempts have been made to raise the young deer or bears that have been abandoned by the mothers;

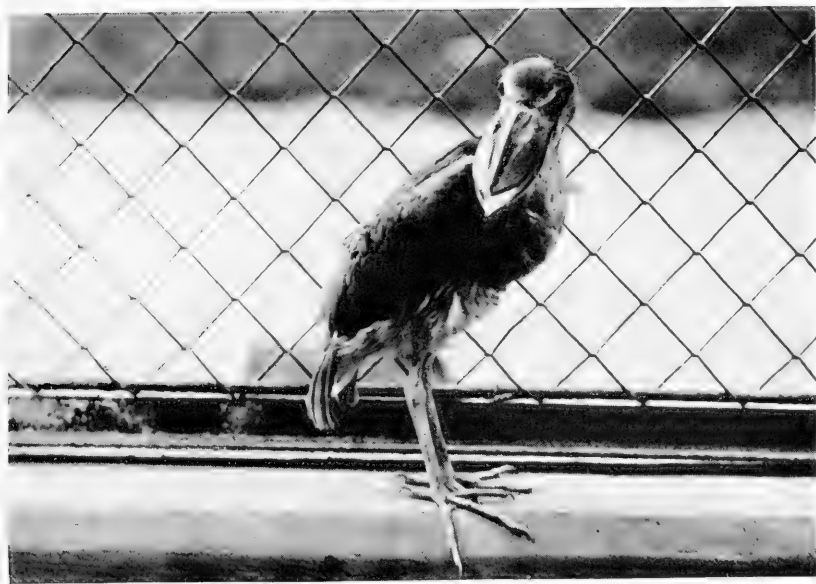
	Primates	Carnivores	Rodents	Ungulates	Marsupials	Edentates	Total
Pneumonia .....	8		4		1	2	15
Bronchitis .....	5		2				7
Tuberculosis .....	3						3
Distemper .....		2	2				4
Actinomycosis .....				2			2
Fish Poisoning .....		2					2
Enteritis .....	6	10	4		3	2	25
Gastritis .....	3	5	2				10
Parasitic Gastritis .....		2	2				4
Stomatitis (Gangrenous) .....	2						2
Acute Indigestion .....	3			1			4
Cage Paralysis .....	3				2		5
Rickets .....	3						3
Fungus Poisoning .....				4			4
Uraemic Poisoning .....	2			1		1	4
Nephritis .....	3		1				4
Still Born .....		14					14
Killed by Cage-Mates .....	5	12		2	3		22
Accidental Deaths (unavoidable) .....				4			4
Anaemia .....	3					2	5
Convulsions .....	2						2
Malnutrition and Atrophy .....							
	51	47	17	14	9	7	145

CAUSES OF DEATHS AMONG MAMMALS DURING 1912.

but the mother's milk seems to be of vital importance to their existence for the first few days after birth, and very few attempts in that line are successful.

*Need for a New Hospital.*—The need for the new Hospital Building which has been projected, and for which funds have been asked of the City, is very great. The present structure is built of wood; it has now been in use about twelve years, and it is in a practically hopeless state of dilapidation. Manifestly, it is inadvisable to spend any considerable sum in placing it in a state of repair, in view of the fact that a new structure has been planned for the near future. The cage-work of the old building needs to be completely renewed, but it seems unwise to expend funds upon repairs to a structure that in the nature of things must soon be torn down. The building is small and at the best it never was anything more than an excuse for a modern animal hospital. Its further use is both unwise and dangerous, and the erection of a new building at an early date is an imperative necessity.





BOAT-BILLED HERON FROM YUCATAN

## DEPARTMENT OF BIRDS.

C. William Beebe, Curator;

Lee S. Crandall, Assistant Curator; Samuel Stacey, Head Keeper.

For several years our bird collection has contained a larger number of living specimens than are possessed by any other zoological institution. Because of previous numbers, our gain in species during 1912 was necessarily small, but it was sufficient to advance our collections to a point where we can feel assured that our birds fairly represent the avifauna of the world. An approximation of the limit of our capacity has been reached, and our efforts in the future will be exerted in maintaining our present status, and in replacing common species with rare ones, rather than in securing a further increase in our collection as a whole.

Several important new installations became available for the use of this department during 1912, greatly increasing the exhibition value of the collections. The Eagle and Vulture Aviary was occupied on May 20 by our large, much-scattered collection of these birds. A substantial brick shelter-house in the rear of the aviary provides ample accommodation for such species as are unable to endure the severe cold of winter. A well-lighted and commodious Pelican House, of brick, was erected to replace the temporary one which had been in service for several years.

The free colony of night herons founded in 1911 on Lake Agassiz has continued to increase, and now contains over thirty birds. It is very gratifying to be able to state that free night herons have now become a permanent feature of the Zoological Park.

During the year a large number of rare and interesting specimens were received. The Galliformes were enriched by the addition of a painted spurfowl (*Galliperdix lunulata*), the lovely crested wood partridge (*Rollulus roulboul*), and an exceptionally fine female ocellated turkey (*Agriocharis ocellata*), which at the present time is in good plumage and perfect health.

Our series of West Indian species was augmented by a large collection from Haiti, including the striated woodpecker (*Chloronerpes striatus*); palm chat (*Dulus dominicus*); Haitian grackle (*Holoquiscalus niger*); pearly-eyed thrasher (*Margarops fuscata*); Haitian robin (*Mimocichla ardosiacea*); Haitian cuckoo (*Saurotheria dominicensis*) and Haitian tanager (*Phoenicophilus palmarum*).

A pair of the rare great bustards (*Otis tarda*) added to the collection a group (sub-order *Otides*) never before in the possession of the Society. Although of large size, these birds are extremely delicate and difficult to maintain in health.

While in Europe during the summer the Curator secured a number of exceedingly rare and desirable birds. Most important were representatives of three species of touracos,—the great-billed (*Turacus macrorhynchus*), Buffon's (*T. buffoni*) and purple-crested (*Gallirex porphyreolopha*). We were later able to secure a pair of the very uncommon gray touracos (*Schizorhis concolor*), which with the white-crested species (*T. corythair*) already in the collection, gives us the most nearly complete series of touracos in captivity. The Curator also secured in Germany a very large specimen of the ground horn-bill (*Bucorax abyssinicus*), a species we have long desired.

The arrival of the fully adult horned screamer (*Palamedea cornuta*) with the curious unicorn-like growth on the head well developed, completes the series of screamers, and gives us the distinction of being the only Zoological Park possessing all of the species of the order Palamedeiformes.

Early in November, announcement was made of the dispersal of a large private collection, situated in the center of Belgium, near Brussels. The Assistant Curator left for Belgium at once and was able to secure many rarities. A canvass of the principal zoological gardens of the continent and England added greatly to their numbers. The birds were assembled in London at the gardens of the Zoological Society, and brought thence to New York, where they arrived safely on December 25th. There were 119 specimens, representing 69 species, of which 66 were not represented in the Society's collection.

Among the most important are two immature specimens of Count Raggi's bird of paradise (*Paradisea raggiana*), the male of which, when fully adult, somewhat resembles the greater birds of paradise now in the Zoological Park, except that the ornamental plumes are chocolate-red instead of yellow.

The great bower bird (*Chlamydodera maculata*), of Australia, will attract much attention, because of his peculiar call, which is indistinguishable from the mew of a cat.

Most delicate of all birds which so far have been kept in captivity are the tiny purple sunbirds, (*Arachnecthra asiatica*) from India. No larger than a hummingbird, the plumage of the

male is a shimmering bluish black. In captivity, their only food is a compound liquid, at which they sip almost constantly.

Most gorgeous of the lot are five species of lories,—East Indian parrots whose tongues become adapted for an exclusive diet of pollen and soft fruit. These include the red-fronted (*Chalcopsittacus scintillatus*), Stella (*Charmosyna stellae*), dark-throated (*Trichoglossus nigrigularis*), red-collared (*T. rubritorques*) and purple-capped lories, (*Lorius domicellus*).

A large series of brilliant Australian parrakeets contains such rare species as yellow-naped (*Barnardius semitorquatus*), Barnard (*B. barnardi*), Barraband (*Polytelis barrabandi*), many colored (*Psephotus multicolor*), yellow-cheeked (*Platycercus icterotis* and Adelaide (*P. adelaidae*). Always uncommon, these birds have become practically unprocurable since the enactment of the new Australian bird protection laws.

Among the larger birds are a variety of eagles, vultures, owls, hawks and gulls. There are three Goliath herons (*Ardea goliath*), standing fully four feet high when erect and so savage that it is unsafe for their keeper to enter their cage unarmed.

Everyone knows the familiar little green "love-birds," which tell the fortunes of the credulous by plucking cards from boxes under the direction of Italian women on street corners. It is easy to imagine, then, the excitement caused in England three years ago by the appearance of birds of this species (*Melopsittacus undulatus*), the plumage of which was of the most delicate blue, set off by purest white. This change of color had been caused by a total elimination of the yellow from the normal green, and is of great scientific interest. These birds have been jealously guarded in Europe, and the Society's pair are the first to find their way across the Atlantic.

Probably of even greater importance to the Society than the acquiring of the above collection, was the gaining of new and important data as to the feeding of delicate birds. The inherent love which most Europeans have for birds leads them to spare no time or trouble in experimenting along these lines. The benefit derived from study at first hand of these methods is already apparent, not only in the improved condition of many of the most delicate specimens but also in the lessened cost of our complicated food mixtures.

*Pheasant Monograph.*—In continuance of this work, the Curator spent three months in Europe, studying the collections in the museums of London, Tring, Paris and Berlin, thus round-

ing out the results of his field work in the Far East. Greater progress has been made with the Monograph as a whole than was anticipated at the beginning of the year. At present the text is considerably more than a third completed, and four-fifths of the paintings have been executed.

Concentration on this monographic work prevented the completion and publication of results of other researches made upon the bird collections during the year, and the only avian number of *Zoologica* brought out was No. 10, containing the description of a new species and sub-species of pheasants,—Kuser's blood pheasant (*Ithaginis kuseri*) and the Sikhim blood pheasant (*Ithaginis cruentus affinis*).

## CENSUS OF BIRDS LIVING IN THE ZOOLOGICAL PARK.

January 1, 1913.

<i>Orders.</i>		<i>Species.</i>	<i>Specimens.</i>
Rheiformes,	Rheas .....	2	2
Struthioniformes,	Ostriches .....	2	2
Casuariiformes,	Cassowaries and Emus...	2	3
Tinamiformes,	Tinamous .....	5	5
Galliformes,	Quail and Pheasants.....	88	204
Turniciformes,	Hemipodes .....	1	2
Ptericlidiformes,	Sand Grouse .....	1	1
Columbiformes,	Pigeons and Doves.....	57	183
Ralliformes,	Coots and Gallinules.....	15	35
Lariformes,	Gulls and Terns.....	17	54
Charadriiformes,	Plovers and Sandpipers...	18	48
Gruiformes,	Cranes, Seriemas, etc.....	13	30
Ardeiformes,	Ibises, Storks and Hérons .....	35	85
Palamedeiformes,	Screamers .....	3	4
Phoenicopteriformes,	Flamingoes .....	2	5
Anseriformes,	Swans, Geese and Ducks	72	712
Pelecaniformes,	Cormorants and Pelicans	9	30
Cathartidiformes,	New World Vultures.....	8	27
Serpentariiformes,	Secretary Birds .....	1	2
Accipitriformes,	Hawks and Eagles; Old World Vultures .....	28	48
Strigiformes,	Owls .....	20	47

Psittaciformes,	Parrots, Macaws and		
	Cockatoos .....	86	194
Coraciiformes,	Kingfishers, Hornbills,		
	etc. ....	12	15
Trogoniformes,	Trogons .....	1	1
Cuculiformes,	Touracos and Cuckoos.....	10	18
Scansoriformes,	Barbets and Toucans.....	8	13
Piciformes,	Woodpeckers .....	9	26
Passeriformes,	Thrushes, Sparrows and		
	all Perching Birds .....	378	1,242
		<hr/>	<hr/>
		903	3,038

## DEPARTMENT OF REPTILES.

Raymond L. Ditmars, Curator; Charles E. Snyder, Head Keeper.

The high standard of the reptile collection has been maintained, and with the close of the year the census enumerating the species and specimens shows little change from that of 1912. The life of many captive reptiles is short, and the Curator is kept constantly on the alert filling gaps with specimens which will interest visitors.

Our series of crocodilians has become thoroughly representative. We are now exhibiting important species from all parts of the world that are inhabited by these creatures. The gavial from the Ganges River, India, received some months ago in an emaciated condition is now thriving and vigorous. This species is not our only Indian crocodile, for a fine young example of the salt-water crocodile (*Crocodylus porosus*), is also exhibited. Of the African species we have the crocodile of the Nile region and the broad-snouted crocodile of the Congo. Another African species in the tanks is the slender-snouted *Crocodylus cataphractus*. For the first time we are now exhibiting the slender-nosed crocodile (*Crocodylus intermedius*) of South America. The Amazon caiman occupies the same tank. We are continuing our observations on the growth of alligators by observing the development of those hatched in the Reptile House eleven years ago.

The painting of panoramic backgrounds in the large cages of the Reptile House has proven successful in every way. This work continues, and the backgrounds of the large cages will be changed from time to time. Other improvements in the Rep-

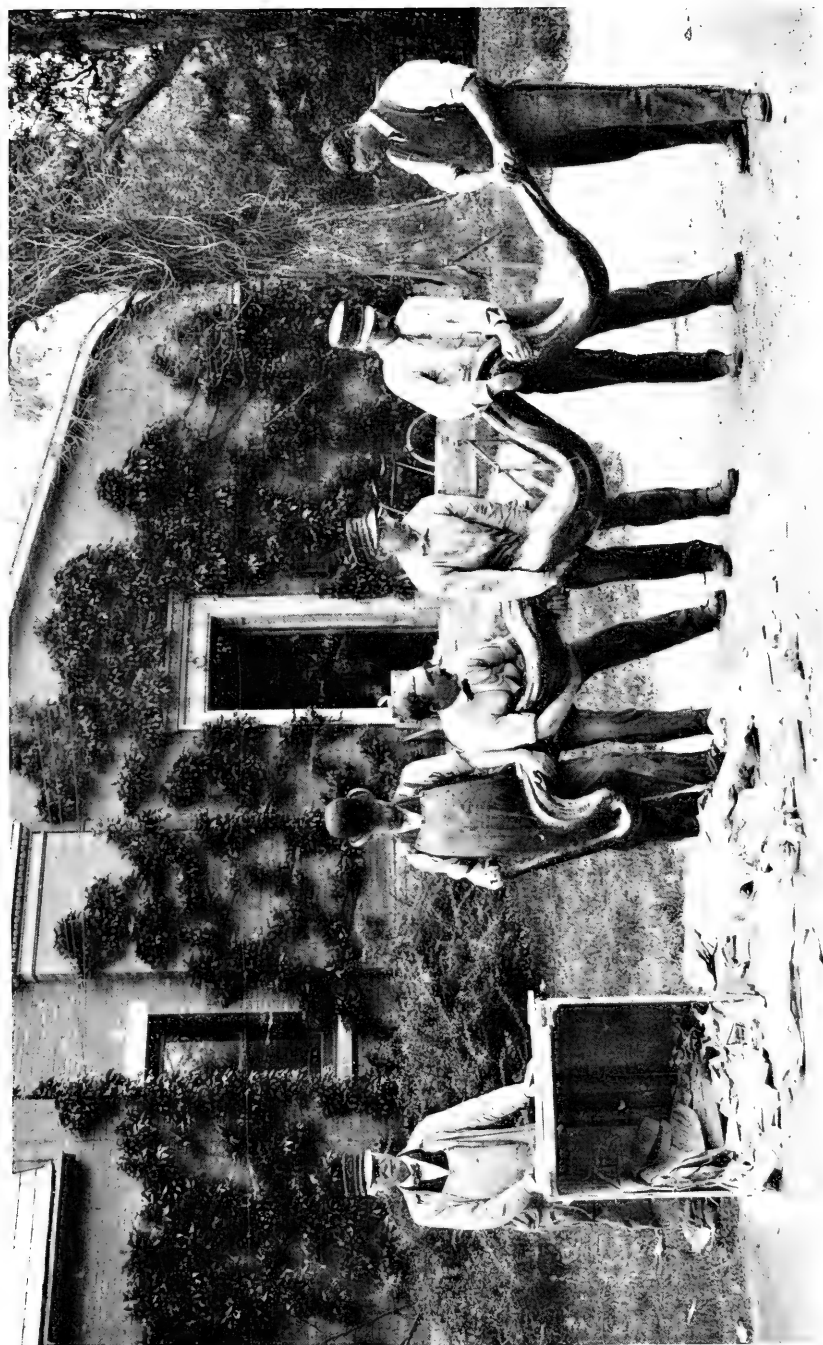
tile House consist of large indoor lizard cages for the iguanas and monitors. A series of thirty-two small, glass-fronted cages has been provided for the North American serpents. This arrangement enables our keepers to give individual attention to many delicate species. Exhibited in this way the smaller snakes are also seen to better advantage and there is less confusion for the visitors in consulting labels.

No serious losses have occurred in the reptile department during the past year. Our larger serpents remain in good condition, although one of them is now undergoing an amazing fast, approaching twenty months' duration. The reptiles longest in the Park are alligators, two of which have been twenty years in captivity. Our king cobra has been on exhibition nine years' time, and there are several southern water moccasins representing successive generations bred in captivity. We are now keeping card indexes embracing data of all important specimens. As the Park grows older we shall thus acquire interesting statistics on the longevity of our captives and their history in captivity.

During the year the Curator has prepared a lengthy and elaborately illustrated paper for *Zoologica* on "The Feeding Habits of Serpents." In this the character of the food, methods of subduing the prey, the dentition and parts of the skull structure relating to feeding, are treated, together with many year's accumulations of notes on living examples.

Among the important accessions during the year the following are worthy of special mention:

Four albino alligators (*Alligator mississippiensis*); 1 gavia (*Gavialis gangeticus*); 2 Central American crocodiles (*Crocodilus americanus*); 6 snake-necked turtles (*Chelodina longicollis*); 3 star tortoises (*Testudo elegans*); 8 Cunningham's skinks (*Egernia cunninghami*); 1 Australian monitor (*Varanus gouldii*); 2 Ceylonese monitors, (*Varanus salvator*); 2 frilled lizards, (*Amphibolurus barbatus*); 3 fer-de-lance, (*Lachesis atrox*); 1 bushmaster, (*Lachesis mutus*); 1 black-tailed rattlesnake, (*Crotalus molossus*); 1 red rattlesnake, (*Crotalus mitchelli pyrrus*); 4 Indian cobras, (*Naja tripudians*); 1 Russell's viper, (*Viper russelli*); 3 Indian pythons, (*Python molurus*); 1 African python, (*Python sebae*); 2 rainbow boas, (*Epicrates cenchrus*); 2 Central American boas, (*Boa imperator*); 2 Indian bull frogs, (*Rana tigrina*), and 8 climbing perch, (*Anabas scandens*).



THE ARRIVAL OF AN ANACONDA FROM SOUTH AMERICA



The annual collecting trip of the Curator was particularly successful. Weather conditions were uniformly good. Over two hundred specimens, representing nine species, were collected. This greatly strengthened the series of local reptiles, the members of which cannot be purchased from the animal dealers, and usually are collected by the Curator and the keepers. In order to obtain in abundance the examples representing the State's reptilian fauna, it is necessary to go a considerable distance from New York City. The Curator's work was in the vicinity of Black Lake, Sullivan County, New York, which is considerably out of the well trodden zone of summer visitors. An automobile was for the first time used in this work, and found of great advantage over a horse-drawn vehicle. In a period of seventeen days the car's speedometer showed we travelled over 300 miles of mountain roads. Several new ledges were hunted for rattlesnakes, and between tracts of snake country much collecting was done for the insect department.

## REPTILES OF THE ZOOLOGICAL PARK.

December 31, 1912.

	Species.	Specimens.
Chelonia, .....	32	253
Crocodylia, .....	8	38
Lacertilia, .....	25	211
Ophidia, .....	52	366
Amphibians .....	18	232
	<hr/>	<hr/>
Total .....	135	1,100

## SUMMARY OF COLLECTIONS.

A census of the animals in the Zoological Park, taken January 1, 1913, is as follows:

	Species.	Specimens.
Mammals .....	210	689
Birds, .....	903	3,038
Reptiles, .....	135	1,100
	<hr/>	<hr/>
Total, .....	1,248	4,827

## THE INSECT COLLECTION.

Raymond L. Ditmars, Curator.

After many months of experimenting to determine the practicability of maintaining different kinds of insects as exhibits, and noting what phases of this subject were most interesting to our visitors, the insect series has now become a well established part of the Zoological Park collection.

Owing to the uniform interest in the cocoons of moths and the chrysalids of butterflies, these parts of the collection have been made particularly strong. During the spring and summer of the past year we exhibited fully five thousand examples of butterflies and moths in the intermediate stage. The cocoons of the moths were fastened on panels of mesh, about four feet long by two feet wide. Panels containing the cocoons of harmless species were hung out of doors, over descriptive labels, and there was no time of the day throughout the spring and early summer that insects were not to be noted in the act of expanding and drying gaudily-colored wings preparatory to flight. Several species were liberated with a view to breeding them wild in the Park. These were the *Polyphemus*, *Cecropia* and *Luna* moths,—which handsome species of our insect fauna are becoming almost extinct over great areas.

Particularly successful work was done in the vicinity of Black Lake, Sullivan County, New York, in conjunction with our reptile-collecting trip. A thoroughly representative collection was made of the various species of singing *Orthoptera*, and with these specimens it was possible to arrange a number of large cages with descriptive labels. A number of species of the *Myriapoda* was also placed on exhibition as the result of this work.

The series of poisonous "insects,"—the spiders, centipedes and scorpions,—remains in good condition, and forms a permanent part of the insect series. These creatures are quartered in the Reptile House during the winter. We have specimens of the great bird-eating spiders that have been on exhibition for a period of two years. They have spun elaborate silk tunnels and clearly demonstrate the construction of hiding places in a native environment.

With the close of the year the insect collection is composed largely of an elaborate series of cocoons ready to be placed on exhibition when the occupants are ready to emerge with the coming warm weather.

GROUND IMPROVEMENTS AND MAINTENANCE WORK OF THE  
DEPARTMENT OF CONSTRUCTION AND FORESTRY.

Hermann W. Merkel, Chief Constructor and Forester; E. H. Costain,  
Assistant Forester.

The most important work in permanent improvements undertaken this year was the final development of Bird Valley, from the Aquatic Bird House, southward to the Elk Range. This was demanded by the completion of the Eagle and Vulture Aviary, and the building of the Zebra House and Wild Horse Yards. This work consisted of a great amount of filling and grading. It required the hauling in of over 5,000 cubic yards of earth, the construction of 5,826 square yards of tar-surfaced macadam roads and yards, 1,058 feet of 88-inch wire fencing on steel posts, and 664 feet of yard fencing of steel. The yard fences were constructed wholly by our own force, and they certainly are highly creditable to Mr. De Wellsworth and his men.

This yard fencing was erected on concrete copings, with pipe posts. The panels consist of a combination of bars, small mesh electric-weld netting, and hand-woven wire mesh. This work furnishes six large outdoor yards for the Zebra House. The large ranges west of this building were also fully developed and completed, so that the entire hill is now occupied by the wild equines, their three buildings and 13 corrals and ranges adjoining them. The total cost of all this work, including the building of 42 catch-basins and the laying of 1,255 feet of drain pipe was \$13,900.00.

Immediately westward of the Eagle and Vulture Aviary, a series of eight show cages and fourteen breeding cages for birds have been constructed. These cages were erected on concrete foundations, running 4 feet below the surface in order to exclude all danger of rats. They have been built of steel and  $\frac{3}{8}$ -inch mesh wire netting throughout and when fully completed will cost about \$1,200.00.

In order to facilitate the cleaning of the Sea Lion Pool, and greatly reduce the amount of water necessary for each filling, the entire bottom of this pool was raised about three feet.

The unsatisfactory condition of the surface of the service road, concourse and approach necessitated a certain amount of grading and a surfacing of tar-macadam of all those roadways. This included the service road from the Service Building to

the Boulevard, and from the Rocking-Stone Hill to the Buffalo Entrance, and of the entire concourse and approach, making altogether about 5,776 square yards. The total cost of this improvement was about \$4,000.00. At the same time, a flight of concrete steps and a walk was built leading up to the Rocking-Stone from the south.

In connection with the new Bear Dens we constructed a flight of concrete steps with bronze railings, 21,000 square feet of concrete walk, and 1,800 square feet of tar-macadam walk, at a total cost of \$2,050.00.

Three of the small Bear Dens for tropical bears were enclosed for the winter, and a small electric heating apparatus was installed in each sleeping-den, at a cost of \$400.00. This rendered it possible to remove those bears permanently from the Small-Mammal House.

The unsatisfactory condition of the sewer from the Elephant House, which again was completely blocked, compelled the building of an additional manhole in one of the yards to a depth of 12 feet, at a cost of \$150.00.

In order to shelter the musk-oxen at night, and keep them from fighting when housed, four stalls with concrete flooring were built in the Musk-Ox Shelter House, at a cost of \$150.00.

The work on the Beaver Pond, which was started in the previous year, was brought to satisfactory completion by removing the black mud down to the clay bottom, and paving the entire pond bottom with broken stone, leaving unpaved only a small area from which the beavers might gather mud for their building operations. The south end of the surrounding ground was raised several feet above the original grade, and a new water supply was installed. This pond is now for the first time in satisfactory condition, and it will remain so, permanently. The cost of all the work on the Beaver Pond amounted to \$2,300.00.

In front of the Pheasant's Aviary a series of vine supports of steel and wire were erected. These supports will answer the double purpose of shading three sides of the Aviary by the foliage of climbing plants, and at the same time it will prevent the plants from rusting the wire netting and iron work of the cages. The cost of this work was \$150.00.

The sidewalk on the Boston Road from the Boat-House to the Buffalo Entrance, which always had been in a rough and

unsatisfactory condition, was smoothly surfaced, 1,225 square yards in all, at a cost of \$1,000.00.

A new walk and a flight of concrete steps were built in the woods between the Boston Road and Bronx Lake, necessitating the laying of 978 square yards of tar-macadam. This is the beginning of a walk on this beautifully wooded hillside which ultimately will extend from the Boat-House to the Bronxdale Bridge. The cost of the work mentioned above was \$1,650.00.

Two feeding platforms for waterfowl, of stone and tar-macadam, were built at the Wild Fowl Pond and Lake Agassiz, at a cost of \$150.00.

The contemplated erection of the two permanent brick buildings for shop and service purposes necessitated the removal of the storehouse, Forester's shop, slaughter-house, stable and morgue. Temporarily these disturbed industries have been cared for by the erection of removable buildings in the Service Yard.

In forestry and planting the most important work was the planting in Bird Valley, consisting of groups of evergreens around the north end of the Eagle and Vulture Aviary, of a great number of shade trees in connection with the new walks and yards, and of shrubbery and perennial planting east of the Aviary. Opposite the Zebra Yards, in Bird Valley, a large pond and two pools were excavated, and it is our intention to establish there a marsh and water garden, which will be completed early in the spring. A number of shade trees were planted along the various walks, and the rhododendron planting along the Elephant House was extended southward.

On 182nd Street, from the Boston Road to the Southern Boulevard, 48 Norway maples of large size, were planted, each one being supplied with three to four yards of good earth, and protected by an iron tree-guard of our own design. This planting will materially help in screening the numerous high flat buildings south of the Park.

For the first time since the establishment of the Park, a great deal of work was done on the east side of the Bronx River, in draining, filling and grading. The marshy fields at West Farms and at Bronxdale were thoroughly under-drained, using 2,162 feet of pipe, and now they are dry enough for mowing machines to pass over them. About 12,000 cubic yards of good earth were deposited there. This was used to fill two low, marshy fields, one at Bronxdale, and one at West Farms,

and to regrade the bank of the Bronx River opposite the Boat-House where the natural washing away of the soil threatened to kill many fine trees.

Two wooden bridges which had become dangerously decayed were removed, and substantial concrete culverts were substituted for them. It is our intention to resurface the entire East River Walk with tar-macadam early next season, and to erect substantial guard rails wherever needed along the bank of the river. A certain amount of planting was done near the southern end of the Park, and it is hoped that by the end of next year, this east side can be in an entirely satisfactory condition. The work on the east side of the Bronx River cost \$3,600.00.

At the Rocking-Stone Restaurant, the extension of the dining-room and pavilion, necessitated the building of 150 running feet of good retaining wall of rustic stone, resting on a sloping rock, and the cost of this work was about \$1,200.00.

At the Elephant House the arrival of the three pygmy hippos compelled considerable changes in cage-work, and the building of a tank connected with the cages on the west side. A small bathing-tank was also built in the outdoor yards.

#### MAINTENANCE WORK.

Few people realize the enormous wear and tear to which the Park and its installations are subjected, not only by its animals but also by some visitors.

The work involved in the care of the grounds, trees, shrubs and other plants, and of the walks, fences, cages, buildings, drainage, water and sewage systems, is continually increasing.

During the early summer, when only one uniformed patrolman and no special police were available, the amount of damage done to trees and shrubs, etc., and in the throwing about of refuse, was very great; but since the reappointment of five of our men as special policemen, we have managed to preserve order fairly well. The great need of extra uniformed police on holidays, Saturday afternoons, and Sundays, has been clearly demonstrated, but it has become impossible to obtain anything like an adequate force. Judging from the many empty pocket-books, wallets, etc., which are continually found by our men in the shrubberies and other places—where they have been thrown by the thieves—pickpockets have been especially active. That one policeman is not sufficient to handle 40,000 people, scat-

tered over 200 acres, is obvious, and the fact that of the seventeen arrests that were made, and the seventeen convictions obtained, all these cases were handled by the employees of the Park, and none by the regular police force, is proof of the need of additional protection.

The habit of picnic crowds to establish themselves in places where proper supervision was impossible, caused the issuing of permits to responsible persons, on blank forms, stating the rules under which picnics may be held, and recording the time, place and number of persons. All confusion of claims was thereby avoided, and while the demand for permits was on a few days greater than the places available, the system established was satisfactory. One practical result was great economy in the cleaning up of refuse by the Park force. Altogether about 4,000 picnickers were taken care of.

The struggle against the deadly hickory-bark-borer was continued by carefully pruning out affected branches, or cutting down entire trees that were badly infected. Of the latter there were fifty-four. All of these might have been saved if the State laws regarding insect pests were enforced by our neighbors—as we hope they will be enforced next year. Some experiments were made in coating the hickories with insecticides, but the outcome is still in doubt.

The number of forest fires has been great, and they have been a constant source of annoyance. No great amount of damage was done—except by the one which occurred at the Nursery on September 11, 1912, which was caused by lightning. It destroyed the tool-house and contents, part of the chicken-house, and some livestock, such as rabbits, guinea pigs and rats. Both of the buildings mentioned were of a very temporary character, the tool-house having been built of rough lumber of the cheapest kind. The poultry house had been made out of the pheasant houses brought from Tarrytown.

If the breeding of poultry is to continue, it is imperative that a new poultry house should be built next summer; and again I urge the building of a proper place for the incubators and brooders, all of which are now installed in the cellar of the breeding-house, a frame structure between the two green-houses. Inasmuch as from five to seven kerosene lamps are used in the brooders and incubators, burning there day and night for a large portion of the year, the danger from fire is entirely too great.

Among the repairs to buildings and installations, which are increasing steadily each year, the following may be mentioned:

*The Bear Dens.*—Owing to the impossibility of removing any of the animals, these dens had no repairs or paint for three years. The completion of the new bear dens, however, enabled us to begin this work, which consisted of repairs to the iron work, drainage and water supply, concrete floors and dens. Here as elsewhere we are substituting iron or concrete for wood wherever possible, and making all repairs of a permanent nature.

*The Bird House.*—The gutters of this building and the entire roof were made tight, and all the cage-work, structural iron work, railings, etc., were painted. The sewer and water systems were given a thorough overhauling.

*Small Deer House.*—This building has been painted and repaired, inside and out; and door-openers have been installed on the west side of the building.

*Lion House.*—New gutters of heavy lead and angle iron for outside cages were constructed and installed. Two new floors were laid for inside cages, the gutters and roof made tight, and all outside cage-work was painted. The east wall of this building, for which I recommended general repairs three years ago, must be taken in hand next summer.

*Antelope House.*—At the Antelope House only minor repairs were made, except to the roof, which had a thorough overhauling.

The outside fences were overhauled and painted.

*Reptile House.*—At the Reptile House a portion of the concrete flooring was cut away to allow the sinking of a large palm, which had reached the ceiling. The roof and gutters of this building received many repairs. This roof is in a very unsatisfactory condition, the slates having been fastened with iron nails which are now rusting off. This places the entire roof in bad condition. The roof over the lobby will have to be removed in 1913 because further repairs are useless.

The shingles of the large Shelter Pavilion in front of the Fox Dens will also need to be renewed.

*Small Mammal House.*—At this building a great deal of repair work was needed, on the cages, cage-floors, and drainage system. The roof of this building, and also all its cage-work, was painted.



Other buildings which received many general repairs were the following: Rocking-Stone Restaurant, Boat-House Restaurant, Entrances, Ostrich House, the various deer houses and shelters, Service Building, etc.

The following outdoor range fences were overhauled and painted: Burrowing-Rodent enclosure, Buffalo fence, Sea Lion Pool fence, Rocky Mountain Goat fence, Asiatic, Red, Axis and Mule Deer fences, Elk fence, as was also the southern boundary fences.

Two hundred and seventy-two tons of ice were harvested in 1912.

The usual work at the Nursery was carried on, and the following stock was produced:

LIVE STOCK.		VEGETABLES.	
2,641 Chickens	210 Bu. Potatoes	140 Pks. Chickweed	
130 Pigeons	25 Tons Mangels	2,000 Hd. Cabbage	
1,239 Rabbits	3 Tons Corn Stalks	2,118 Ears Corn	
390 Guinea Pigs	1 Ton Oat Straw	3,028 Hd. Lettuce	
2,653 Rats	1 Ton Carrots	20 Bu. Tomatoes	
320 Mice	1,500 Bu. Carrots	104 Qts. Berries	
37 Pigs	1,308 Bu. Beets	104 Lbs. Grapes	
25,261 Eggs	2,400 Rts. Celery		

#### PLANTS PROPAGATED:

32,936 Perennials.                      2,000 Shrubs.

#### DEPARTMENT OF ADMINISTRATION.

H. R. Mitchell, Chief Clerk and Manager of Privileges;  
George A. Dorn, Cashier.

To the usual routine work of this department connected with the maintenance of the Park and the operation of the privileges, there has been added during the past year the necessary details in connection with the purchase, delivery and billing of a large and varied quantity of materials required in connection with the unusual amount of ground improvement work that was carried on throughout the year.

It will be noted by reference to the schedule printed elsewhere that the attendance of visitors during 1912 was the greatest of any year in the history of the Park, the total reaching nearly a million and three-quarters.

Because of the rigid rules of the Board of Estimate, not permitting transfers from one account to another within the Maintenance Fund for the year, and the extremely high prices

that have prevailed for many of our food supplies, it has required a particularly hard struggle to keep within our appropriation.

*Zoological Society's Accounts.*—For several years some changes in the methods of keeping the Society's accounts have been under consideration, particularly the consolidation of the various funds that had previously been carried in separate accounts, into a single bank account. A resolution authorizing such consolidation on January 1st, 1912, was adopted late in the previous year. This made necessary many changes in the general books of the Society that are kept in this office.

After consultation with expert accountants, the Chief Clerk made a report giving full details of the system recommended, which was approved; and the new books were opened as of January 1st, 1912. Into this new set of books have been incorporated certain entries intended to set forth the assets of the Society, in accordance with recommendations of the Auditing Committee and resolutions of the Executive Committee.

After a year's practical use the new books have proven entirely satisfactory. A complete audit for the year is now under way, and will be completed before the publication of this report. It is not probable that any radical changes will be made in the form of the Treasurer's statements as heretofore published in the Annual Reports, in which they are shown separately for the various funds of the Society. This simple form seems to be readily comprehended by those unfamiliar with the Society's finances.

*Privileges.*—Generally speaking, the privilege business has kept well up to the increased showing made in attendance. But for an unusual amount of bad weather during May and September, which are invariably the best two months for business, all previous annual figures would have been exceeded.

Part of the plans under consideration last season for enlarging the service facilities at refreshment stands were carried out, giving temporary relief to the previous over-crowded conditions. Some study was given to a scheme for consolidating the present riding-animal stand with the refreshment pavilion near the Small Bird House, in an entirely new location, but as there were no funds available, the matter was postponed. Our equipment for the transporting of supplies about the Park was again overtaxed so seriously as to make it necessary to purchase another automobile,—the third one now in use in the operation of this department. A light commercial car of 750 pounds capacity

was decided upon as best adapted to our new requirements in the rapid handling of small deliveries.

The sales of publications such as guide books, souvenir books, postal cards, etc., during 1912 reached aggregate figures of nearly \$10,000, and as the greater part of this business was done at the entrances, and more than half of it at the Boston Road Entrance, we feel that better arrangements should be provided for the care and display of the publications. An artistic little shelter running along the south side of the entrance plaza, as included in the original plans for the entrance, would give suitable space and permit visitors to select at their leisure publications to carry with them as they were leaving the Park.

*Privilege Accounts.*—Some changes in the methods of accounting for the Privilege Department were considered early in the year, but as the books in use were sufficient to run through the season, and the contemplated changes not of great importance, it was determined to make those changes on the first of January, 1913. The consolidation of bank accounts as previously carried into effect in the Society's funds was the most important change effected. It was not found convenient to have these accounts audited twice during the season, but a complete audit for 1912 was made immediately after the close of the year.

*Privilege Building.*—Unforeseen difficulties and delays were encountered in connection with the long contemplated building for Privilege purposes, with the result that the contract was not awarded until late in 1912. Fortunately, open weather has permitted the work to proceed almost without interruption, so that at the close of the year the excavation is practically complete, and materials are on hand for the construction of the foundations and walls. It is possible that with continued favorable weather, the building can be brought to completion early enough for it to be utilized during the coming summer. Inasmuch as the work of the Privilege Department is now being handled with difficulty in its present temporary quarters, every effort will be made to have construction carried forward with dispatch. A careful restudy of the plans for this building early in the year resulted in some changes and improvements of importance, especially regarding economy in the operation of the plant.

*Rocking-Stone Restaurant.*—Business at the Rocking-Stone Restaurant was disturbed and somewhat curtailed by the important additions to the building that were under way during the

last three months of the year. In spite of this fact, however, a substantial increase for the season was shown. It had been planned to have the dining-room addition built during midsummer while the open pavilion was being used, and then move into it so as to permit of the construction of the pavilion addition with a minimum of interruption to business and annoyance to guests. Because of the insufficiency of the appropriation for the work the original plans had to be redrawn, with a consequent delay. It was unfortunate that the original request for funds was not allowed, as the amount appropriated was so limited as to make it impossible to carry out the work wholly on the original architectural lines of the building.

The work is now complete, and is already a source of great satisfaction. Both the summer and winter dining-rooms have been enlarged to double their former size, and the service facilities proportionately increased. These alterations are certain to result in increased business.

*Soda Water.*—Improvements at several of the soda stands, to relieve the overcrowded conditions on Sundays and holidays, were carried into effect during April, 1912. A small addition was made in the rear of the stand near the Bird House, sufficiently large to permit of the installation of another separate and entirely independent fountain. A narrow walk connecting with the platform where tables are placed, permits of waiter service from this fountain, thus greatly relieving the demands on the fountain where the public is served. A somewhat similar arrangement was made at the lunch pavilion, where a small fountain was put in at one end of the counter. At the Bear Den stand, a small cashier's booth was built and the original building remodeled and improved to give greater capacity.

It is expected that this business will benefit greatly through the facilities afforded by the new building now under construction. For several years past it has been seriously hampered by the lack of proper and adequate quarters.

*Souvenir Books.*—Negotiations for an issue of fifty-cent souvenir books were begun early in the year, with the result that an order was finally placed for an edition of 20,000 copies, —more than four times any previous issue. The new book consists of 48 6x8 pages of four-color single and group illustrations. Deliveries could not be made until rather late in the year, but the increased sales of the souvenir booklet at once demonstrated its popularity with visitors.

We are still without a large souvenir booklet, for which there is a considerable sale. It is proposed to issue a limited edition as early as practicable in the coming season.

Consideration is also being given to the preparation of a souvenir book designed especially for children, to contain principally illustrations of young animals. It is believed that one can be made to retail at fifty cents, that will have a very wide sale.

*Postal Cards.*—Early in 1912, the largest issue of postal cards we have ever ordered was delivered. It contained in all more than a million and a half of cards. The cards are from four-color plates and are far superior to our previous issues, in every way.

It was decided to give the public the benefit of the prices obtained by such a large edition, and they are being sold in sets of twenty-four for twenty-five cents. The result was that sales increased 37 per cent. over the year 1911, and 22 1-2 per cent. over any previous year. Mail orders are constantly coming in from parties in all parts of the country who have visited the Park and purchased one set and wish the other sets to complete the series.

*Photogravures.*—An entirely new departure was made in getting out an issue of twenty thousand photogravures, consisting of 5,000 each from a series of four carefully selected photographs. They were reproduced in sepia, size 8x10, and were placed on sale at fifty cents for the set. As they are somewhat inconvenient to carry, arrangements were made for mailing them to any address in special reinforced envelopes, without additional cost. At the close of the year, sales were increasing rapidly, and the issue of another series is being considered.

*Guide Book.*—The tenth, or "Spectacled Bear Edition," of the Guide Book, 30,000 copies of which were printed, and placed on sale late in August, 1911, has met with exceptionally good sales, due no doubt, to its complete revision, the addition of about twenty new pages and entirely new illustrations. The stock is now so far depleted as to make it necessary to take up the printing of a new edition very early in 1913, in order that it may be ready for delivery by April 1st. The new edition will come from the last set of plates with only slight alterations, as the text is already well up-to-date. Because of the rapid sale of the last issue, it may be found that the forthcoming edition should be increased from 30,000 to 50,000.

*Boat House Restaurant.*—A number of mounted heads of big game, for which space was not available in the Administration Building, were loaned to the Boat-House Restaurant. These were added to the heads and horns exhibit already in the dining-room, adding much to its attractiveness. A number of other improvements were made during the year, chief among them being the replacing of our old china with a new set of special design, which materially improved the appearance of our china service.

A greatly needed improvement, which it is hoped can be made before the busy summer season, will be the removal of the large ice box from the kitchen to a small cellar to be built adjoining the kitchen on the south. This would furnish more room in the kitchen, and much reduce the constant cost of refrigeration in a heated kitchen. The restaurant business at the Boat-House made a very satisfactory gain in 1912.

*Boating.*—The new launch which was purchased late in 1911 for delivery in the spring of 1912 came none too soon for the handling of the Sunday crowds in the early spring. It was also found necessary to purchase another carload of the round-bottomed steel row-boats, and these were delivered early in April. Our equipment now includes three 30-foot electric launches of a passenger capacity of about 25 persons each, and 150 row boats. During the busy hours on Saturdays and Sundays, the launches are run on 10 minutes' headway, loaded to their legitimate capacity. Although a new concrete dock is greatly needed, funds for its construction could not be secured and it was necessary to make temporary repairs to the old dock so as to get through the season without serious accident. A new floor was laid over more than half of the surface, which was in a more or less dangerous condition. It seems probable at this time that with this repair it will have to go through another season also, as an appropriation for a new dock seems improbable in 1913.

*Gate Receipts.*—The paid admissions at the gates during the past year were considerably in excess of any previous year since the opening of the Park. We are also able to record the largest attendance on any pay-day in our history, nearly 1,800 visitors having passed through the turnstiles on Thursday, August 22nd.

*Riding Animals.*—The total receipts from this privilege were in excess of those of any previous year since 1906 at which

time the large male Indian Elephant "Gunda" was one of the attractions of the riding animal stand, and the source of considerable revenue. We had hoped to have a riding elephant for 1912, by the use of the female African elephant "Sultana," but it was thought that she was not yet sufficiently matured, and her use for this purpose was delayed until a later period.

*Pavilion East of Bronx River.*—Funds have been available for some time for the construction of a shelter pavilion on the east side of the Bronx River. Plans have been under consideration for several months and are now ready for final approval. This will add an improvement much needed by visitors to that portion of the Park, where up to date there has been no shelter of any kind available. It is proposed to have limited refreshment service in one end of this pavilion, for the accommodation of the large number of basket and lunch parties frequenting that part of the park. The location decided upon is at the north end of the open space opposite the Boat-House, and near the walk running along the east side of the river.

#### DEPARTMENT OF PUBLICATION AND PHOTOGRAPHY.

Elwin R. Sanborn, Editor and Photographer.

The work of Mr. Sanborn increased to such proportions that early in November his health gave way under it to an extent so serious that he was obliged to accept a three month's leave of absence, and take up practical ranch life in Oklahoma during that period. The treatment is proving thoroughly effective, and about March 1, Mr. Sanborn will resume his duties with renewed health and vigor.

As the Society's collection of zoological photographs increases, the public appreciation of their value also increases. The number of prints purchased during the year for publication was 731, and the total number of prints sold was 3,451. In addition to the above about 900 prints were made for our index albums and files. Even after 13 years of effort, it is yet difficult to make the public understand that this photographic business is carried on by the Zoological Society not for any commercial profit there is in it,—because there is none whatever,—but solely as a duty to science and the public at large. The cash returns from this work represent only a small portion of its cost, but the increasing appreciation of our fine pictures by authors, publishers, lecturers, artists, sculptors and taxidermists is quite sufficient to convince the Society that its plan for making the

photographic privilege of "the greatest good to the greatest number" is the best that could have been devised. Another source of satisfaction is found in the fact that during the past 13 years no unworthy or unfair photographs ever have gone out of the Park for publication.

A number of moving-picture companies have contributed to the annual income of our photographic department and have paid for the privilege of making moving-picture films of our animals, always subject to the approval of the Director. Some excellent moving pictures of the Park collections are now being shown throughout the United States.

The publication during the year, aside from those for the Privilege Department, consisted of the Sixteenth Annual Report, four numbers of *Zoologica*, six numbers of the *Bulletin*, a new edition of the *Official Guide*, and two folders.

#### DEPARTMENT OF ENGINEERING.

George M. Beerbower, Civil Engineer.

So continuous have been our requirements for the services of our engineer during the past year, that he could not be spared even for a week at a time for his usual vacation. This was due chiefly to delays in the iron-work and glass-work of the Pelican House, which he was superintending, and delays in passing on plans for the Yak House, which he drew and revised from time to time.

The work of the engineer is made up of so many details, and in such a great variety, that it is not expedient to enumerate all of them here. The more important items of his work were the revising of the plans for a masonry bridge for Bronxdale brook; the surveys and plans for the rock excavation in the service yard; the preliminary plans for additions to the restaurant and lunch pavilion; the surveys, walk plans, plats and grading plans and staking out of same in the vicinity of the Eagle and Vulture Aviary, winter-house, breeding-cages and the Zebra House; the superintendence of the construction of the Pelican House and photograph gallery; preliminary plans for roads and walks east of the Bronx River; studies and plans for a Yak House; surveys and drawings for a retaining wall east of the restaurant; plans for a dark-room for the photograph gallery, and a boiler-room for the Pelican House.



Probably members do not realize that this work is not done by any stereotyped methods. When any walks or other improvements are contemplated, surveys of all trees, buildings and other controlling objects are made. These are platted lines drawn to conform to the conditions, and these changed from time to time until approved by the Executive Committee, the Park Department Engineer, the Commissioner of Parks and the City Landscape Architect. After all this, the work is staked out accurately on the ground, elevations are taken and platted, graceful undulations decided upon and all these marked upon stakes to fit the topography.

The Society may be interested in knowing of the economy with which this department is run. All the work is done by the one engineer, personally—except work done in the field, when one or more assistants are required. These are detailed from the ranks of unskilled laborers. In the City departments, regular staffs of assistant engineers, rodmen and chainmen are maintained for work of this kind.

#### CONTRACT WORK IN GROUND IMPROVEMENTS.

Conducted under the direction of the Park Department of the Borough of the Bronx. Thomas J. Higgins, Commissioner; Martin Schenck, Chief Engineer.

*Contracts Completed During 1912.*—Two improvement contracts were completed by the Society during the past year. The Eagle and Vulture Aviary, erected by George Hilderbrand at a cost of \$18,867, was completed early in the autumn, and immediately occupied. This contract included a spacious winter shelter house for tropical birds of prey, which is quite indispensable to this collection. The Zebra House, erected by Joseph Balaban, at a cost of \$25,181, was completed and occupied on November 15th. It is fully described in the Zoological Society Bulletin for January, 1913.

A Pelican House of brick and glass, to replace the old temporary wooden structure that was ready to fall down from decay, was erected in the Service Yard by Joseph E. Dobbs at a cost of \$4,045. Naturally this good structure is a source of great satisfaction to the curators of birds.

The following new contracts were executed in 1912:

*Workshop Building.*—In the Service Yard, in the rear of the Service Building, there is now being erected by A. V. Johnson & Company, at a cost of \$23,895, a permanent two-story

brick structure, which is to provide permanent quarters for the mechanical force of the Park. It will include adequate workshops for the carpenters, wire-workers, blacksmith, plumbers and painters. The building may fairly be regarded as a model of its kind, both in utility and low cost.

*Public Service Building.*—Situated near the Workshop Building, a new and substantial brick structure is arising which will be known as the Public Service Building, because it will accommodate a collection of industries in which visitors to the Park are specially interested. The building is being erected by J. F. Walsh & Brother, at a cost of \$29,230. It will furnish proper housing for a plant for the manufacture of artificial ice, another for the manufacture of ice cream, a laundry, cold storage rooms for the meat and fish supplies of the Zoological Park, and storage room for the really great amount of stock that is regularly carried by the Privilege Department. This building will render the operation of the Privilege Department both more economical and more satisfactory, and the danger of fire is reduced to an irreducible minimum.

*Addition to Restaurant.*—At a cost of \$3,900, Joseph Balaban erected an addition to the main dining-room of the Restaurant, and also to the southern pavilion, doubling the capacity of each. These two improvements will undoubtedly prove to be sources of great satisfaction to the patrons of the Rocking-Stone Restaurant, where, during the past year, the overcrowding of the dining-rooms on Sundays and holidays had become a source of great discomfort.

Respectfully submitted,

WILLIAM T. HORNADAY,

Director.

## REPORT OF THE DIRECTOR OF THE AQUARIUM

TO THE BOARD OF MANAGERS.

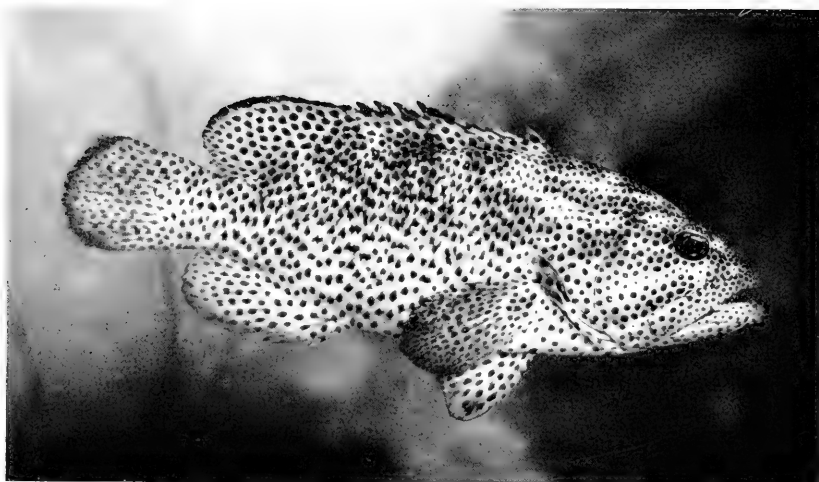
THE year 1912 has been an uneventful one in the history of the Aquarium, but it may be recorded as entirely successful. The attendance on the part of the public shows an increase of 132,811 over that of 1911, although the exhibition tanks have contained only the customary number and variety of specimens. Nothing unusual was added to the collections. A fact which should be emphasized is the successful maintenance from year to year, in winter as well as in summer, of a large and varied exhibit of aquatic forms of life for the entertainment and instruction of the public. A fixed number of tanks allows of no increase in the quantity of aquatic animals that can be housed in the present building, and but little increase in variety; yet the annual number of visitors becomes greater as time passes. The cost of maintenance is but a quarter of that required by each of three larger museums in the City, none of which has ever entertained the same number of visitors.

Living aquatic animals cannot be kept under the simple conditions sufficient for the specimens of a natural history museum, but must be shipped and maintained in their natural element. In the case of the New York Aquarium the water supply includes both sea water and fresh water, and both of these tempered to suit the requirements of tropical and northern species. It is true that the species usually to be seen in the Aquarium could be disposed of and different species secured, but the cost of rejecting species already well established in the tanks and trying out others not so well known, would hardly be warranted. A large collection of living fishes and other aquatic animals requires constant care by a well-trained force of men, and the Aquarium is not lacking in this respect. There are many kinds of foods to be prepared. The fishes alone range in size from the newly hatched, to individuals weighing three hundred pounds.

Most of the groups of fishes to be seen swimming so lazily behind the large plates of glass are the hardy survivors of



RUNNER OR CREVALLE



GRAYSBY OR CONY

larger groups, from which the weak or injured have been gradually eliminated.

While feeding is a matter requiring careful attention, the purity and temperature of the water are still more important, and are watched night and day. No other public aquarium maintains so large and varied a collection.

There are on exhibition in the Aquarium at the present time about 170 species in all groups which is about as large a number of forms as has been on exhibition at any one time in the history of the institution. In the different groups the number stands as follows:

Fishes .....	113 species, 3,679 specimens.
Reptiles .....	24 species, 137 specimens.
Amphibia .....	5 species, 24 specimens.
Invertebrates .....	26 species, 1,557 specimens.
Mammals .....	1 species, 1 specimen.

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169 species, 5,398 specimens.

The collection of fishes has probably never been in better condition than at the present time, both in regard to number of species and to number and condition of individuals. These may be classed as follows:

Fresh-water .....	38 species, 2,868 specimens.
Salt-water (local) ...	23 species, 496 specimens.
Salt-water (tropical)	52 species, 315 specimens.

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113 species, 3,679 specimens.

Of this number 54 species are entitled to rank as game fishes of which 18 are fresh-water and 6 local salt-water and 30 tropical salt-water. Out of the whole number at least 74 species have some commercial value and most of them may be found, at least occasionally, on the New York market.

The fish hatchery is running at the present time with eggs of the rainbow and brook trout and white fish furnished us by the U. S. Bureau of Fisheries.

The 25 species of reptiles include 17 species of fresh-water turtles, 4 species of marine turtles, an alligator, Floridan crocodile and a species of crocodile from the Malabar coast of India. Among the amphibia may be mentioned the giant salamander of Japan which is again represented in our collection.

The 25 species of invertebrates include 10 of commercial importance. Perhaps the most striking of these is the tank of eleven spiny lobsters or sea-crayfish from Key West.

The mammals at present are limited to a single large male California sea-lion. The mortality among animals of this group resulting from confinement indoors has been so great in past years that no effort has been made to secure new specimens of other species, many of which we have had on exhibition in past years.

*Accessions.*—The collections of the Aquarium as a whole are supplied by the New York Zoological Society and are purchased with its funds. A small number of specimens is annually received from friends of the Society. A gift of considerable importance is the annual supply of eggs of fishes received from the United States Bureau of Fisheries for the maintenance of a fish-hatching exhibit. The eggs of several kinds of fishes are supplied from government hatcheries at different seasons of the year. The fish cultural exhibit is interesting and instructive to the public, and the young fishes hatched in the Aquarium—to the extent of several thousand each year—are afterward placed in public waters by the New York Conservation Commission. During the past year the following species were hatched at the Aquarium: Black-spotted trout, brook trout, steelhead trout, rainbow trout, quinnat salmon, silver salmon, land-locked salmon, smelt, yellow perch, pike perch and whitefish.

On March 10th the Aquarium received a most desirable collection of fresh-water fishes from the New York Conservation Commission through Dr. Tarleton H. Bean, State Fish Culturist. These fishes had been exhibited at the Sportsmen's Show in New York City. The collection contained 257 specimens, representing 18 species. The Commission also presented at later dates thirty live lobsters and specimens of brook and rainbow trout.

Gifts of brook trout and trout eggs were received from the Southside Sportsmen's Club of Oakdale, Long Island, through Mr. Geo. P. Slade, President. The Tuxedo Club, through Mr. Edwin C. Kent presented 10,000 eggs of the steelhead trout. An attractive collection of thirty-two fancy goldfishes representing six different varieties was presented by Mr. E. K. Bruce of Thornburg, Iowa, and twelve large sized goldfishes of the fringe-tailed variety were presented by Mr. Henry Bishop of Baltimore, Md. Mr. S. C. Lloyd, of Brooklyn also presented fancy goldfishes of several varieties. Captain Albert Runyon presented a loggerhead turtle weighing 210 pounds and Mr. Walter T. Smith of Fulton Market a green turtle weigh-

ing 300 pounds. A forty-two-pound hawksbill turtle was presented by Trame & Co., of New York. The Paradise Brook Trout Company of Henryville, Pa., presented thirty-three brook trout. Through the courtesy of Mr. Joseph K. Nye of New Bedford, Mass., seven live porpoises were obtained at the porpoise fishery at Cape Hatteras, N. C., and their transportation was undertaken by the New York Zoological Society. These specimens did not survive transportation, and were presented to the American Museum of Natural History.

Mr. Charles A. Mabie of New York presented specimens of pickerel.

The more important gifts of the New York Zoological Society were several hundred tropical fishes from Florida, several specimens of large-sized sea-turtles, numerous salt-water fishes from the adjacent coast, including over 200 seahorses. A complete list of the exhibits received during the year will be found under the heading "Accessions."

Exchanges were made with the Detroit Aquarium.

The principal gift to the library was ten volumes, mostly zoological, of the Reports of the Harriman-Alaska Expedition, received from the Smithsonian Institution, through Dr. C. D. Walcott, Secretary. The Aquarium is also indebted to the Smithsonian Institution and the National Museum for their important annual publications.

Important collections were as usual obtained by the employees of the Aquarium from the lakes in the larger parks of the City and in Bronx River. Among the species thus obtained were black bass, calico bass, pickerel, sunfish, white perch, yellow perch, carp, catfish, sucker, roach and crayfish.

The regular collector of the Aquarium obtained in the vicinity of Gravesend Bay most of the local sea fishes and invertebrates on exhibition during the year. A large proportion of the invertebrates were given to teachers of biology for class work and to stock small marine aquaria in the City schools. Shrimps and killi-fishes were collected in large numbers as "live food" for use in the Aquarium.

Teachers of biology in the City schools have been assisted as usual in maintaining small marine aquaria in their classrooms. The specimens furnished included fishes and invertebrates, representing many forms of seashore life. Among the institutions supplied may be mentioned the College of the City of New York, DeWitt Clinton High School, New York Training

School for Teachers, Barnard College, Columbia University, American Museum of Natural History and Packer Institute, Brooklyn.

Numerous living specimens of fishes and amphibians were presented or loaned to the American Museum of Natural History, to be used as models in the preparation of mounted exhibits.

Improvements during the year were almost entirely connected with the engine room and pumping plant.

Additions were made to the supply of stored seawater in the reservoir and several large glass plates in the exhibition tanks were replaced.

Considerable painting was necessary in the exhibition hall of the Aquarium and the walls of the service galleries were whitewashed.

The large shipping tanks which are annually subjected to more or less hard usage were renewed and additional tanks of extra large size were constructed. An automatic stereopticon was installed in the main exhibition hall and supplied with slides illustrative of American fishery industries.

Expenditures resulting from break-downs amounted to much less than last year.

The small library attached to the Director's office has been rendered much more useful by the addition of numerous zoological works of reference. The most important acquisition during the year was a full set of *The American Naturalist*.

From May 1 to August 31, the Aquarium was kept open until six o'clock in the evening. This was done without extra cost and the public made full use of the extra hour of admission.

For several months past Dr. G. A. MacCallum of New York City has been making post-mortem examinations of the fishes dying at the Aquarium. Dr. MacCallum is interested especially in the study of the trematode parasites, and he has succeeded in finding a number of entirely new forms. In the course of examination for these parasites a careful study of the causes leading to the death of the fish is made. In many cases the autopsy discloses no extensive parasitism and no organic disease, the fish often being in good condition as far as can be discerned. Occasionally parasites are so abundant, especially when on the gills, as to be the evident cause of death. In fact, it may be stated that aside from the deadly fungus of the fresh-water fishes,



gill parasites are responsible for the loss of more of our fishes than any other discernible cause.

Internal parasites are occasionally responsible for the loss of specimens. One notable case is that of the large drumfish, in the flesh of which are found the larval cysts of the tape-worm (*Tetrarhynchus elongatus*). These cysts, according to measurements made by Dr. MacCallum, may reach a length of 20 1-2 inches by 3 or 4 millimeters in thickness, and the musculature may be riddled by them. The protozoan parasites known as *Myxosporidia*, which form tumor-like swellings and sores on the skin and internally, are not infrequently the cause of death.

Among more unusual cases reported by Dr. MacCallum are thyroid disease (goitre), liver disease with occlusion of the bile duct, epithelioma (cancer) eroding the lower jaw, and a case of suppurative myocarditis (a form of heart disease occasionally observed in man).

When the detailed reports submitted by Dr. MacCallum have accumulated sufficiently it is hoped that the results of his studies may be brought together in a separate report.

#### ATTENDANCE AT THE NEW YORK AQUARIUM IN 1912.

January	Visitors.....	99,647	Daily average.....	3,214
February	“ .....	119,099	“ “ .....	4,106
March	“ .....	145,513	“ “ .....	4,693
April	“ .....	182,928	“ “ .....	6,097
May	“ .....	191,632	“ “ .....	6,181
June	“ .....	208,863	“ “ .....	6,962
July	“ .....	228,319	“ “ .....	7,365
August	“ .....	252,154	“ “ .....	8,134
September	“ .....	246,618	“ “ .....	8,220
October	“ .....	191,919	“ “ .....	6,190
November	“ .....	153,242	“ “ .....	5,108
December	“ .....	124,421	“ “ .....	4,013

Total	“ .....	2,144,355	“ “ for year	5,859
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The increase in the attendance over the year 1911 is 132,811.

It is sixteen years since the Aquarium was opened to the public. The total number of visitors to December 31st, 1912, exceeds thirty-two and a half millions, or an average of over five thousand six hundred a day for the entire period.

*Zoological Society Bulletin.*—Two numbers of the Zoological Society Bulletin in 1912 were devoted to the Aquarium, and

were prepared by Dr. R. C. Osburn. The March number related entirely to the subject of small home aquaria and proved to be of unusual interest to the public. It was reprinted by the *Scientific American*. The edition offered for sale at the Aquarium was soon exhausted, and will be re-issued with additions as a pamphlet of the New York Aquarium Nature Series. The sale of the various Aquarium numbers of the Bulletin has amounted to 1,720 copies during the year.

*New York Aquarium Nature Series*.—An account of the *Northern Elephant Seal*, published in *Zoologica* (scientific contributions of the New York Zoological Society), *Chameleons of the Sea*, published in the *Century Magazine*, and *The Cultivation of Fishes in Natural and Artificial Ponds*, printed in the annual report of the Zoological Society, all by Director Townsend, have been re-issued as pamphlets of the New York Aquarium Nature Series.

The sale of all of these, including the first of the Nature Series, *Sea-Shore Life* by Dr. A. G. Mayer, has been a source of profit to the Aquarium Privilege Account.

A series of colored post-card views of the Aquarium and its collection issued in January, 1912, has also proved a source of profit.

The total receipts from the sale of publications during the year amounted to \$1,084.10.

Record of Monthly Mean Temperatures and Specific Gravities of the waters of New York Harbor at the Battery. Daily observations made by W. I. DeNyse at the New York Aquarium during the year 1912.

	<i>Temperature of water</i>	<i>Specific Gravity</i>
January .....	38 .....	1016
February .....	36 .....	1017
March .....	38 .....	1013
April .....	43 .....	1010
May .....	50 .....	1011
June .....	58 .....	1014
July .....	66 .....	1016
August .....	68 .....	1017
September .....	68 .....	1017
October .....	64 .....	1017

November .....	58 .....	1014
December .....	49 .....	1013

The water of the Harbor has a low salinity as compared with that of the open sea, and on account of the great amount of sewage which it receives, it is too impure for the use of the Aquarium.

Respectfully submitted,

C. H. TOWNSEND,

*Director.*



HEAD OF ADULT MALE PYGMY HIPPOPOTAMUS  
Showing the Texture of the Skin

## DISTRIBUTION AND HABITS OF THE PYGMY HIPPOPOTAMUS.

By Major Hans Schomburgk, F. R. G. S.

So far as we are aware, this is the first published description of the Pygmy Hippo in its natural haunts in the Liberian forest that has been drawn from personal observations, and therefore it is of absorbing interest. The accompanying map of distribution was prepared by Maj. Schomburgk especially for the Zoological Society, and that also now appears for the first time.—*Editor*.

**E**VEN though the Dark Continent has reluctantly given up one secret after another to the enterprising spirit of the undaunted explorers, and while there are today hardly any absolutely unknown countries left in Africa, yet there still is an enormous field open to scientific explorations.

The ancient question: "*Quod novum ex Africa?*" might be put to-day to the returning explorer with the same right that it was put to the Roman general centuries ago; for even to-day every energetic explorer can endow the world with some new and precious gift out of this inexhaustible treasury. Though many hunters and explorers have traveled through the remote parts of Africa, in the past decades, even yet they have not been able to wrest from the Dark Continent all her zoological treasures.

For many years zoologists have known that in the depths of the Liberian primeval forests there existed an animal which European eyes had never seen alive, and that to the world in general was practically unknown.

In 1686 Dr. O. Dapper, of Holland, published a book on the exploration of the western coast of Africa, in which he gives a description of the fauna of the Dappercoast, the present Liberia. Dapper wrote of three different kinds of "pigs," one of which is easily recognized as the bushpig, (*Potamochoerus pencillatus*). The other is undoubtedly the warthog (*Phacochoerus aethiopicus*). The third one he describes as a very big, black pig, which the natives fear very much on account of its big, sharp teeth.

Now, it is a well-known fact that the bushpig and the warthog exist in Liberia, and perhaps also the giant pig (*Hylochoe*.

*rus meinertzbageni*), of which Mr. Pye Smith has had accounts from the natives. However, none of these species are really dangerous, nor do they have teeth so formidable as Dapper describes them. I am positively sure that one of the three animals mentioned by Dapper is the Pygmy Hippopotamus (*Choeropsis liberiensis*). Whenever I asked the Golah people to give me a description of the Pigmy Hippo, they would say: "Him be big, past pig; but him be pig, and love water. Him be saucy too much. We all fear him for true. Him teeth be like knife; he fit to bite man in two, one time." No wonder that Dapper, who had not the slightest idea of the existence of the Pigmy Hippo, should have supposed from such a description, that the animal in question must be a giant pig.

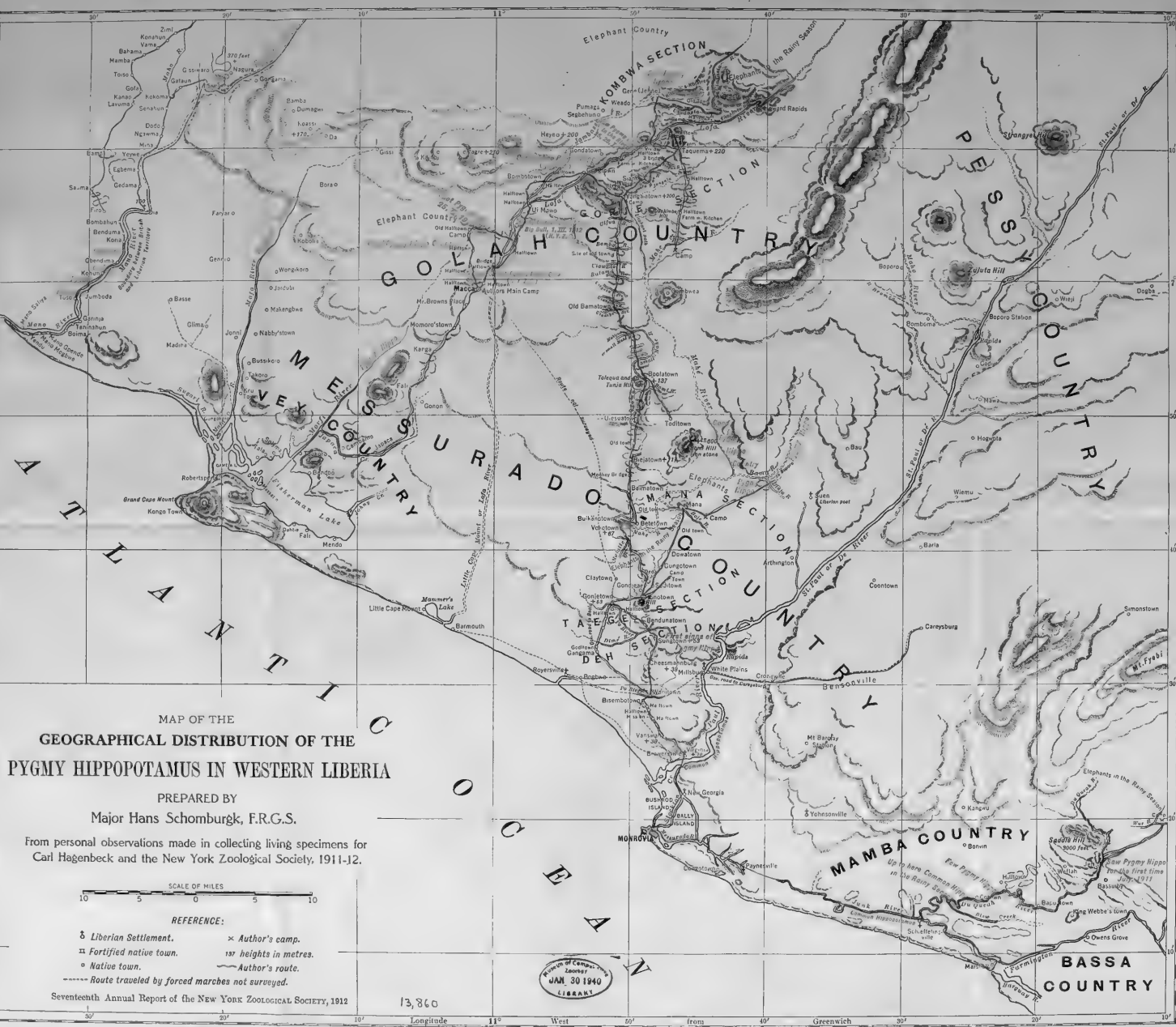
In 1844 Dr. Samuel G. Morton, of the Philadelphia Academy of Sciences, found a skull of an unknown animal, to which he gave the name, *Choeropsis liberiensis*. About 1860 the German explorer, Schweizer, and a few years later Dr. Buttikofer, of Rotterdam, succeeded in securing from natives a few specimens of the *Choeropsis liberiensis*, which they sent to Europe. Beyond the existence of the species, however, very little else was known of it. The few mounted specimens I saw in English and German museums resemble any other animal rather than the one they are meant to represent.

When I arrived in Liberia I was told by the Europeans in Monrovia, that it was very doubtful whether such an animal as the Pygmy Hippopotamus really existed. At the same time, the existence of hippopotami in the Junk and St. Pauls River and also in the Mano River was well known, but the description I got of the animal left no room for doubt that only the common hippo had been observed.

While hunting in German East Africa on the Semikwe Flats, where in the dry season hundreds of elephants congregate, I had frequently met with small hippos, so that I began to believe that I had there discovered a new kind of hippo, and a near relation of the Liberian pygmy. I mention this fact only to show how easily one may be deceived, and it is no wonder that many a European in Liberia has taken the common hippo for the Liberian dwarf species.

If it had not been that every traveler who had visited Liberia absolutely denied the existence of the large hippopotamus, I should hardly have dared to fit out my expedition to go into the interior.

My first definite information regarding the existence of the Pygmy Hippo I obtained in Sheffelienville, from an old American







mulatto, Mr. Lett. He it was who accompanied the Buttikofer expedition as hunter and assistant taxidermist. He assured me that Pygmy Hippos were occasionally met with in the Duquea River, where the natives called them "Nigbwe," and in the dry season sometimes killed them. At the same time, he gave me a very lucid description of an enormous animal that had arrived out of the sea, on the beach near Sheffelen, about 15 years ago.

While I am writing these lines I fancy myself sitting on the veranda of Mr. Lett's house listening to his tales of a hunter's sorrow and joy. It is a beautiful moonlit evening in the rainy season. After a severe fight the moon has defeated the dark rain clouds and is now flooding the broad waters of the Junk River and the whole country adjacent with a silvery light.

The natives call the big hippopotamus N'nama, while the civilized Liberians have hardly given it a name. Sometimes they even call it a "rhino!"

It was on the Duquea River that I made my first acquaintance with the Pygmy Hippopotamus. On my return from that country to Monrovia I shot and wounded one of the mysterious animals described by Mr. Lett, which proved to be nothing but the common hippopotamus. On my second expedition to Liberia, when I explored the practically unknown section of the Golah country, I had ample opportunity to study the habits of the Pygmy species.

In July, 1912, there appeared an article in the London "Field" (CXX No. 3109), stating that the dwarf hippo and its big cousin could never live side by side. This is not true. While they do not live exactly together, I am absolutely certain that the animals live perfectly content in the same locality, as I had opportunity enough to observe. Various Europeans also told me that they do so in the Mano River. The article referred to furthermore states that the Pygmy Hippo frequents the water just as much as his big cousin. This it does not do while at liberty, in its native haunts.

When I was hunting on the Lofa River, near Taquema, I twice found a Pygmy Hippo in the water early in the morning. Once the animal was very near the shore, and seemingly intended to leave the water. I was coming down the river in a canoe. A common hippopotamus would have dived for safety, but that animal at once climbed up the river bank and disappeared in the bush. Here one might say that it was only following the course it had laid out for itself, before we came.

On another occasion I met a Hippo swimming across the river. It must have been feeding in a native garden on the other side. As soon as it noticed the canoe, it disappeared under the water. As I thought it would remain in the river, I had the canoe brought to the spot where I had seen the animal disappear, but here again it made for shore, under water, climbed up the bank and sought refuge in the bush. Under similar circumstances a big hippo would never have done so.

I found that the Pygmy Hippo roams through the forest singly or in couples. In the dry season it retires during the day in tunnels washed out by the water under the overhanging banks of small forest streams. It enlarges these tunnels, so as to find a comfortable and cool resting place. I found some of those watery dens fully 20 yards away from the actual water of the stream.

The only Hippo I shot was found in one of these holes, which in all cases I observed, had both an entrance and an exit. While the entrance is near the water, the exit is on the top of a river bank. In the rainy season the Pygmy Hippo, I may safely say, only goes near the water when it is obliged to cross a stream. In the daytime it sleeps in dark recesses in the thick forest, in most cases on rising ground far from water.

The native hunters of the various tribes with which I became acquainted always told me when I asked them about the habits of the Pygmy Hippo, that they sometimes found them fast asleep in the bush, covered all over with white foam. It was said that if an animal is found sleeping like this, one can approach without any fear of waking it, cut the bush all around, and touch it with one's hand. The story was told me unsolicited by several men of different tribes, who had no communication with one another, so that I have absolutely no reason to doubt the truth of the statement, or the inference that this Pygmy is a sound and even sluggish sleeper.

The Pygmy Hippo is an adept at digging, much more so than his big cousin, which as a rule, is content to graze on the herbage of the streams that it inhabits. In examining the incisor teeth of the Pygmy Hippo one finds that they are nearly always unevenly worn off by a hard substance which can only be the sand or earth with which they are brought in contact when digging for roots. The Pygmy loves the tender shoots of young rice, but its staple food, when it enters a native plantation, is always Cassada (*Manihot ultissima*).

In the beginning of the dry season, or let us say in November or December, young ones are born, and are then sometimes caught by the native women while fishing. The young ones go with their mother up to about the second or third year. Both the immature animals now in the Zoological Society's Park in New York were still with their mothers. The young ones always go in front of the mother, like the young elephants, rhinos and common Hippo. As with every other species of pachyderm, only one young is born at a birth.

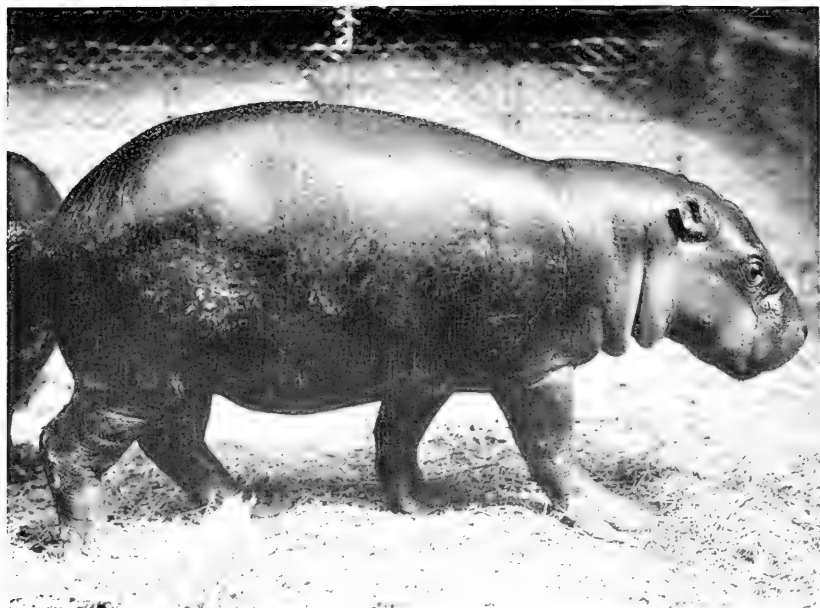
When I had first caught the little cow, "Saucy," she used to cry piteously for her mother at night. The noise was not unlike the shout of gladness a chimpanzee gives when he greets his keeper. On the other hand, however, it sometimes resembles the piteous bellowing of a calf.

Strange as it may seem, the Pygmy Hippo is very much feared by the natives. King Tawe Dadwe, the Paramount chief of the Golah tribe, told me that in several cases native hunters had been badly mauled and sometimes even killed by a wounded Mwe.

I consider the mental capacity of this species much higher than that of its big cousin. When I had caught the first animal, the big bull, near Tindoa Island, I at once commenced to tame him. The first few days he used to rush at me, roaring like an angry lion. I faced him with a big stick in my left hand, and a useful hunting crop with a long lash in my right. After he had received two or three good dressings down he began to get sensible, and within a week listened to my voice. After about a fortnight had passed, I could go in the kraal, sit down on a chair and feed him green food out of my lap.

With the exception of the Indian elephant, I believe that my Pygmy Hippos are the first cases on record wherein fully-grown, well-aged pachyderms have been captured wild and perfectly tamed.

In the kraals where I kept the Hippos in Macca, I had to have the primitive bathing arrangements for the animals cleaned and emptied by the boys. For this purpose from 20 to 30 men would form a chain and pass buckets from hand to hand. After a time the men used to sit right alongside the animals, and they never made the slightest attempt to attack any of the men. The natives of Liberia now consider



MALE PYGMY HIPPOPOTAMUS



PAIR OF YOUNG PYGMY HIPPOPOTAMI

me a very powerful witch-doctor, because I succeeded in taming the much-feared Mwe.

The Pigmy Hippo is distributed not only through the coast belt of Liberia, but right back to the boundary of the French Sudan. In fact it is found all through the forest region. It is known everywhere, but does not seem to be frequently met with in any locality. How far its distribution stretches into the bordering Sierra Leone and French Ivory Coast, I am unable to state. I believe that near Cape Mount is the point where it is found nearest to the coast. I have been assured by Liberians and natives that sometimes it even enters the plantations belonging to Robertsport, right at Cape Mount.

During my first travels in Liberia I intended to catch the Pygmy Hippo with nets in the rivers; but very soon I had to abandon that plan. In the first place, the animals are rarely met with actually in the water; and secondly, there is too much dead wood and rocks in the Duquea River. On my second trip I relied solely on pits. These pits had to be very carefully laid out. Three or four animals escaped from my pits before I discovered the right way to dig them.

The little brutes are so active that they can get out of a pit seven feet deep. My new system was as follows: When a pit had been dug, about 7 feet deep, 2 1-2 feet wide and 5 feet long, I made slanting steps about a foot broad, on both sides at the bottom. As an animal stood in a pit these sloping steps prevented it from reaching the top, and when it tried to mount the steps, it would invariably slide back again. Out of these new "patent" pits I never lost another animal.

How very easy it must be to catch a young Hippo in East Africa, where they are found lying in shoals in the pools of the rivers, and where deeply-cut paths show where they leave the water to feed on shore during the night!

The Liberian Hippo has no regular resting places. Roaming through the woods like an elephant, it hardly uses the same path twice, and sometimes it took me several days before I could find a place where I could dig a pit with any chance of success.

While with the big Hippo the trouble commences when it has been caught, the troubles are practically over when the Pigmy Hippo is taken prisoner. The transport of the big Hippo is one of the hardest things imaginable. The animal is so stupid and vicious that he will run his head against any-

thing. Even when he is put in a cage for transport to Europe he rushes against the iron bars and sometimes shifts the cage for yards during the night. The Pigmy Hippo is a dear, sensible little beast. The only attempt it makes to regain its freedom is by trying to climb up the walls of his kraal. He is more like a tapir in his ways. A big Hippo will sometimes refuse food for several days after he has been caught, but even the big bulls of the Pygmys I have caught in Liberia took food while they were still in the pit, where they could not move. I used to take pieces of cassada, put them on a stick and hand them down to the animals, who would greedily devour them. Surely animals that feed so readily when caught should thrive in captivity if properly cared for.

When I brought the first animal from the Lofa to Macca,—a five days' trip,—the transport basket proved to be a little too small, so that the Pygmy could not stand up; but all the same, he never lost his good appetite. I was afraid that he would not be able to stand the excitement and fatigues of this frightful journey, throughout which he was carried by a crowd of howling natives; but when we arrived at Macca, and I let him out of the basket, he simply shook himself and gaily trotted off. I doubt very much whether one of his big cousins could have survived the journey at all.

## THE VERTEBRATES IN THE NEW YORK AQUARIUM.

*A List of the Species of Vertebrates Exhibited in This Institution  
Since its opening on December 10, 1896.*

By Raymond C. Osburn, Ph.D.

THE following list of animals that have been on exhibition in the Aquarium at some time during the more than sixteen years since this building was opened to the public, has been compiled chiefly from records made by Mr. W. I. DeNyse. The statements as to length of life in confinement have also been taken from Mr. DeNyse's records in nearly all cases. It must be understood that the period stated in each case does not mean the average length of time in confinement, but the longest time that any individual has lived in our tanks.

Concerning the length of life in confinement many things must be taken into consideration. The narrow confines of the aquarium tanks are so ill-suited to the nature of many animals, especially fishes of the open sea, that even in the pure sea-water of our storage system, life resolves itself merely into an endurance test. In other cases the animals seem perfectly at home and probably are as favorably situated as they are in their natural environment. Again, it is impossible in some cases to obtain the natural food and many species do not take readily to any substitutes in this matter, while others readily adapt themselves to the food supply.

In the case of rarer species only a few, or perhaps a single individual may have been exhibited for a short time, while in the common forms the longer period stated may indicate merely the longevity of some particularly hardy specimen out of the many that have been on exhibition. Not infrequently a single specimen of some uncommon species has been received in poor condition as a result of improper means of transportation and naturally has not survived for any length of time.

Inability to control temperature conditions also limits the length of life of certain of our fishes. Particularly is this true

of some of the local marine fishes which migrate, since these are supplied with water at the local temperature. Migratory fishes occurring in this vicinity in winter die at the summer temperatures, and those found in summer cannot stand the colder water supplied during the winter and die unless placed with the tropical fishes in the warm-water tanks. The size of the tank, without doubt, exerts an influence on the length of life, and those of the fishes kept in the large floor pools have an advantage over those contained in the small wall tanks. In general it may be stated that the quieter and more lazy the species or individual appears to be, the better is its chance for a long life in confinement, but apparently this rule does not apply to members of the seal family. In this group the lazy ones soon die of pulmonary diseases while the more active live longer. Thus in our experience the harbor seal lives, on the average, but a few months, while one particularly lively specimen lived eight years. The sea-lion that has been on exhibition for more than six years is almost constantly on the move.

Lack of sunshine undoubtedly affects the reptiles which love to bask in the sun, while the lack of fresh out-door air no doubt is a serious detriment to the members of the seal family.

In a number of cases the longest record refers to specimens still living.

The list shows that there have been on exhibition altogether during the past sixteen years, 9 species of mammals, 1 bird, 34 reptiles, 23 amphibians, 92 fresh-water fishes, 124 marine fishes from local waters and 96 tropical marine fishes, making in all 379 species exhibited.

This list might have been greatly increased if any attempt had been made to collect and exhibit the smaller, less conspicuous species, particularly among the fresh-water fishes. Also no effort has been made to exhibit the small aquarium fishes, exotic or native, such as are commonly kept in balanced aquaria. While such would undoubtedly be interesting, in the absence of space and the lack of proper arrangements for exhibition of these smaller forms, there has been no incentive to handle them.

The game and food fishes and the brilliant tropical forms have been of the greatest interest to our visitors, and, for this reason, these have formed the major portion of our exhibits.

A full list of the species exhibited is as follows:



## MAMMALS.

## Order CETACEA.

LIVED IN  
AQUARIUM

White Whale, <i>Delphinapterus leucas</i> .....	7 weeks
Dolphin, <i>Delphinus delphis</i> . Received in poor condition...	2 weeks

## Order SIRENIA.

Manatee or Sea-cow, <i>Manatus latirostris</i> .....	1 ½ years
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## Order PINNIPEDIA.

California Sea-lion, <i>Zalophus californianus</i> .....(still living)	5 years
Alaska Fur Seal, <i>Callorhinus alascanus</i> .....	8 months
Harbor Seal, <i>Phoca vitulina</i> .....	8 years
Harp Seal, <i>Phoca groenlandica</i> .....	3 months
West Indian Seal, <i>Monachus tropicalis</i> .....	5 years
Elephant Seal, <i>Macrorhinus angustirostris</i> .....	9 months

## BIRDS.

Loon, *Urinator imber*. Kept for a few weeks and then sent to the Zoological Park.

## REPTILES.

## Order CROCODILIA.

Florida Crocodile, <i>Crocodylus americanus</i> .....(still living)	3 years
Indian Crocodile, <i>Crocodylus</i> sp.....(still living)	5 months
Florida Alligator, <i>Alligator mississippiensis</i> .....(still living)	7 years

## Order CHELONIA.

## Family CHELYDRIDAE.

Snapping Turtle, <i>Chelydra serpentina</i> .....	5 years
Alligator Snapping Turtle, <i>Macrochelys lacertina</i> .....	2 years

## Family CINOSTERNIDAE.

Musk Turtle, <i>Aromochelys odoratus</i> .....	3 years
Mud Turtle, <i>Cinosternum pennsylvanicum</i> .....	3 years

## Family TESTUDINIDAE.

Painted or Pond Turtle, <i>Chrysemys picta</i> .....	2 years
Western Painted Turtle, <i>Chrysemys marginata</i> .....	2 years
Yellow-bellied Terrapin, <i>Chrysemys scabra</i> .....	2 years
Red-bellied Terrapin, <i>Chrysemys rubriventris</i> .....	2 years
Cumberland Turtle, <i>Chrysemys elegans</i> .....	2 years
Cuban Turtle, <i>Chrysemys scripta</i> , var. <i>rugosa</i> .....	1 year
Geographic or Map Turtle, <i>Malacoclemmys geographica</i> .....	2 years
Diamond-backed Terrapin, <i>Malacoclemmys palustris</i> .....	2 years
Albino Texan Turtle, <i>Malacoclemmys littoralis</i> .....	1 year
Reeve's Turtle, <i>Damoniea reevesi</i> . From eastern Asia .....	6 months
Spotted Turtle, <i>Chelopus guttatus</i> .....	2 years
Muhlenberg's Turtle, <i>Chelopus muhlenbergii</i> .....	2 years
Wood Turtle, <i>Chelopus insculptus</i> .....	2 years
Blanding's Turtle, <i>Emys blandingii</i> .....(still living)	2 years

Box tortoise, <i>Cistudo carolina</i> .....	(still living)	4 years
African box tortoise, <i>Cynixis</i> sp. ....		
Gopher Tortoise, <i>Testudo polyphemus</i> .....	(still living)	6 months
European Tortoise, <i>Testudo graeca</i> .....		
Family TRIONYCHIDAE.		
Soft-shelled Turtle, <i>Trionyx spinifer</i> .....	(still living)	4 years
Southern Soft-shelled Turtle, <i>Trionyx ferox</i> .....		Short lived
Amazon Side-necked Turtle, <i>Hydraspis maximilianii</i> .....		3 months

## MARINE TURTLES.

Loggerhead Turtle, <i>Thalassoshelys caretta</i> .....	(still living)	12½ years
Hawksbill Turtle, <i>Chelonia imbricata</i> .....	(still living)	2 years
Atlantic Green Turtle, <i>Chelonia mydas</i> .....	(still living)	5 years
Pacific Green Turtle, <i>Chelonia virgata</i> .....	(still living)	15 years
Leather Turtle, <i>Sphargis coriacea</i> .....		3 weeks

## Order OPHIDIA.

Common Water-snake, <i>Natrix fasciata</i> , var. <i>sipedon</i>		
	(still living)	8 months

## AMPHIBIANS.

## Family PROTEIDAE.

Mud Puppies, <i>Necturus maculatus</i> .....	4 years
Blind Salamander, <i>Typhlomolge rathbuni</i> .....	1 year

## Family CRYPTOBRANCHIDAE.

Hellbender, <i>Cryptobranchus alleghehiensis</i> .....	5 years
Giant Salamander, <i>Megalobatrachus japonicus</i> .....	4 years

## Family AMBLYSTOMIDAE.

Blotched Salamander, <i>Amblystoma opacum</i> .....	3 years
Spotted or Tiger Salamander, <i>Amblystoma tigrinum</i> .....	2 years
Fire or Spotted Salamander, <i>Salamandra maculosa</i> .....	2 years
European Newt, <i>Triton vulgaris</i> .....	8 months

## Family PLETHODONTIDAE

Red Salamander, <i>Spelerpes ruber</i> .....	1 year
Slimy Salamander, <i>Plethodon glutinosus</i> .....	1 year

## Family PLEURODELIDAE.

Common Newt, <i>Diemyctylus viridescens</i> .....	3 years
Red-bellied Salamander, <i>Diemyctylus torosus</i> .....	1½ years

## Family AMPHIUMIDAE

Congo Eel, <i>Amphiuma means</i> .....	5 years
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## Family SIRENIDAE.

Siren, <i>Siren lacertina</i> .....	2 years
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## Family RANIDAE

Bull Frog, <i>Rana catesbiana</i> .....	2 years
Salt-marsh Frog, <i>Rana virescens</i> .....	6 to 8 months
Pickerel Frog, <i>Rana palustris</i> .....	6 to 8 months
Leopard Frog, <i>Rana pipiens</i> .....	2 years
Green Frog, <i>Rana clamata</i> .....	2 years

Wood Frog, <i>Rana sylvatica</i> .....	Short lived
Family BUFONIDAE.	
Common Toad, <i>Bufo lentiginosus</i> , var. <i>americanus</i> . Raised from eggs .....	1 year
Family PIPIDAE	
Surinam Toad, <i>Pipa americana</i> .....	6 months

## FISHES.

## FRESH WATER

## GANOIDEI.

Family POLYODONTIDAE.	
Paddle-fish, <i>Polydon spathula</i> . Received in poor condition...	1 week
Family ACIPENSERIDAE.	
Lake Sturgeon, <i>Acipenser rubicundus</i> .....	3 years
Family LEPISOSTEIDAE.	
Common Garpike, <i>Lepisosteus osseus</i> .....	(still living) 18 years
Short-nosed Garpike, <i>Lepisosteus platostomus</i> (still living)	18 years
Alligator Gar, <i>Lepisosteus tristoechus</i> . Received in poor condition .....	2 weeks
Family AMIIDAE.	
Mudfish or Bowfin, <i>Amiatus calva</i> .....	(still living) 12 years

## TELEOSTEI.

Family SILURIDAE (Catfishes).	
Channel Cat, <i>Ictalurus punctatus</i> .....	(still living) 5 years
Mississippi Cat, <i>Ameiurus lacustris</i> .....	(still living) 5 years
White Cat, <i>Ameiurus catus</i> .....	(still living) 2 years
Horned Pout or Bull-head, <i>Ameiurus nebulosus</i> .....	(still living) 5 years
Yellow Cat, <i>Ameiurus natalis</i> .....	(still living) 2 years
Mud Cat, <i>Leptops olivaris</i> .....	(still living) 2 years
Albino Catfish, sp. not determined (probably <i>Ameiurus nebulosus</i> ) .....	1 year
Family CATOSTOMIDAE (Suckers).	
Buffalo-fish, <i>Ictiobus cyprinella</i> .....	1 year
Quill-back, <i>Carpionodes velifer</i> .....	3 years
Eastern Carp Sucker, <i>Carpionodes cyprinus</i> .....	1 year
Brook Sucker, <i>Catostomus commersonii</i> .....	2 years
Chub Sucker, <i>Erimyzon sucetta</i> .....	
Red-horse Sucker, <i>Moxostoma aureolum</i> .....	1 year
Family CYPRINIDAE (Carps and Minnows).	
Carp, <i>Cyprinus carpio</i> .....	4 years
Mirror Carp, <i>Cyprinus carpio</i> , var. ....	4 years
Leather Carp, <i>Cyprinus carpio</i> , var. ....	4 years
Goldfish, <i>Carassius auratus</i> (in numerous varieties).....	8 years
Common Tench, <i>Tinca tinca</i> .....	3 years
Golden Tench, <i>Tinca tinca</i> , var. ....	3 years

Golden Ide, <i>Idus idus</i> .....	3 years
Stone-Roller, <i>Campostoma anomalum</i> .....	1 year
Chub or Fall-fish, <i>Semotilus atromaculatus</i> .....	6 months
Roach or Golden Shiner, <i>Abramis crysoleucas</i> .....	5 years
Pearl Roach, <i>Abramis crysoleucas</i> , var. <i>roseus</i> (still living) .....	10 years
Redfin, <i>Notropis umbratilis</i> .....	2 years
Silver Dace, or Shiner, <i>Notropis cornutus</i> .....	2 years
Black-nosed Dace, <i>Rhinichthys atronasus</i> .....	5 years
Family ANGUILLIDAE (True Eels).	
Common Eel, <i>Anguilla chrysypa</i> .....	(still living) 6 years
Albino Eel, <i>Anguilla chrysypa</i> .....	6 months
Family SALMONIDAE (Salmon, Trouts, Whitefish and Graylings).	
Round Whitefish, <i>Coregonus quadrilateralis</i> .....	(still living) 5 years
Sault Whitefish, <i>Coregonus labradoricus</i> .....	(still living) 5 years
Quinnat Salmon, <i>Oncorhynchus tshawytscha</i> .....	4 years
Silver Salmon, <i>Oncorhynchus kisutch</i> .....	2 years
Atlantic Salmon, <i>Salmo salar</i> .....	2 years
Ouananiche, <i>Salmo salar</i> , var. <i>ouananiche</i> .....	2 years
Landlocked Salmon, <i>Salmo salar</i> , var. <i>sebago</i> .....	3 years
Black-spotted or Cut-throat Trout, <i>Salmo clarki</i> .....	2 years
Steelhead Trout, <i>Salmo gairdneri</i> .....	4 years
Rainbow Trout, <i>Salmo irideus</i> . Raised from eggs and kept for more than 5 years.	
Brown Trout, <i>Salmo fario</i> .....	5 years
Swiss Lake Trout, <i>Salmo lemanus</i> .....	2 years
Lake Trout, <i>Cristivomer namaycush</i> .....	3 years
Albino Lake Trout, <i>Cristivomer namaycush</i> .....	(still living) 3 years
Brook Trout, <i>Salvelinus fontinalis</i> .....	5 years
Golden Trout, <i>Salvelinus aureolus</i> .....	3 years
Hybrid Trout ( <i>Salvelinus fontinalis</i> + <i>Salmo fario</i> ).....	3 years
Hybrid Trout ( <i>Salvelinus fontinalis</i> + <i>Salvelinus aureolus</i> ).	
Montana Grayling, <i>Thymallus ontariensis</i> , var. <i>montanus</i> ...	3 months
Family UMBRIDAE (Mud Minnows).	
Eastern Mud Minnow, <i>Umbra pygmaea</i> .....	8 months
Family LUCIDAE (Pikes and Pickerels).	
Banded Pickerel, <i>Lucius americanus</i> .....	2 years
Eastern or Chain Pickerel, <i>Lucius reticulatus</i> ..	2 years
Pike, <i>Lucius lucius</i> .....	2 years
Muscallonge, <i>Lucius masquinongy</i> .....	6 years
Family POECILIIDAE (Killifishes).	
Fresh Water Killifishes, <i>Fundulus diaphanus</i> .....	3 years
Top-Minnow, <i>Gambusia affinis</i> .....	1 year
Family AMBLYOPSIDAE (Blind Fishes).	
Mammoth Cave Blindfish, <i>Amblyopsis spelaeus</i> .....	2 years
Small Blindfish, <i>Typhlichthys subterraneus</i> .....	1 year

Agassiz's Blindfish, <i>Chologaster agassizii</i> .....	2 years
Family GASTEROSTEDAE (Sticklebacks).	
Brook Stickleback, <i>Eucalia inconstans</i> .....	4 years
Family APHREDODERIDAE (Pirate Perches).	
Pirate-perch, <i>Aphredoderus sayanus</i> .....	2 years
Family CENTRARCHIDAE (Sunfishes and Basses).	
Calico Bass, <i>Pomoxis sparoides</i> .....(still living)	3 years
Crappy, <i>Pomoxis annularis</i> .....(still living)	3 years
Mud Sunfish, <i>Acantharcus pomotis</i> .....	8 months
Rock Bass, <i>Ambloplites rupestris</i> .....(still living)	3 years
Warmouth, <i>Chenobryttus gulosus</i> .....	2 years
Black-banded Sunfish, <i>Megonistius chaetodon</i> .....	3 years
Red-breasted Sunfish, <i>Lepomis auritus</i> .....	3 years
Long-eared Sunfish, <i>Lepomis megalotis</i> .....	3 years
Blue-gill Sunfish, <i>Lepomis pallidus</i> .....	3 years
Common Sunfish, <i>Eupomotis gibbosus</i> .....	3 years
Small-mouthed Black Bass, <i>Micropterus dolomieu</i> .....	5 years
Large-mouthed Black Bass, <i>Micropterus salmoides</i> .....	5 years
Family PERCIDAE (Perches).	
Pike-Perch or Wall-eyed Pike, <i>Stizostedion vitreum</i> .....	2 years
Sand Pike, <i>Stizostedion canadense</i> .....	2 years
Yellow Perch or Ringed Perch, <i>Perca flavescens</i> .....	5 years
Johnny Darter, <i>Boleosoma nigrum</i> .....	3 years
Family SERRANIDAE (Sea Basses).	
White Bass, <i>Roccus chrysops</i> .....	2 years
White Perch, <i>Morone americana</i> .....	1 year
Family COTTIDAE (Sculpins).	
Millers Thumb, <i>Uranidea gracilis</i> .....	2 years
Family GADIDAE (Codfishes).	
Burbot, Lawyer or Ling, <i>Lota maculosa</i> .....	4 years

## EXOTIC SPECIES.

Family LABYRINTHIDAE.	
Climbing Perch, <i>Anabas scandens</i> , from India .....	8 years
Paradise Fish, <i>Polyacanthus viridi-auratus</i> , from E. Indies .....	4 years
Gourami, <i>Osphromenus olfax</i> , from East Indies .....	4 years
Family CICHLIDAE.	
Chanchito, <i>Cichlasoma hedricki</i> , from Mexico...(still living)	2½ years
Chanchito, <i>Cichlasoma</i> sp., from Mexico.....(still living)	2½ years
Family GYMNOTIDAE.	
Electric Eel, <i>Electrophorus electricus</i> , from South America. Received in poor condition .....	6 months
Family COBITIDAE.	
Loaches (several species undetermined) from Europe..lived	2 years

## MARINE FISHES (Local).

**MARSIPOBRANCHII.**

Lamprey Eel, <i>Petromyzon marinus</i> .....	6 months
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**ELASMOBRANCHII.**

## Family GALEIDAE.

Smooth Dogfish, <i>Mustelus canis</i> .....	2 years
Blue Shark, <i>Carcharhinus milberti</i> . Received in poor condition .....	3 weeks

## Family SPHYRNIDAE.

Hammerhead Shark, <i>Sphyrna zygaena</i> . Received in poor condition .....	1 week
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## Family CARCHARIDAE.

Sand Shark, <i>Carcharias littoralis</i> .....	2 years
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## Family SQUALIDAE.

Horned Dogfish, <i>Squalus acanthias</i> .....	6 months
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## Family RAJIDAE.

Common Skate, <i>Raja erinacea</i> .....	2 years
Big Skate, <i>Raja ocellata</i> .....	6 months
Barndoor Skate, <i>Raja laevis</i> .....	8 months

## Family NARCOBATIDAE.

Torpedo or Electric Ray, <i>Tetronarce occidentalis</i> . Received in poor condition .....	2 weeks
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## Family DASYATIDAE.

Common Sting-ray or Stingaree, <i>Dasyatis centura</i> .....	3 months
Butterfly-ray, <i>Pteroplatea maciua</i> .....	4 months

## Family MYLIOBATIDAE.

Cow-nosed Ray, <i>Rhinoptera bonasus</i> .....	4 months
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**GANOIDEI.**

## Family ACIPENSEDRIDAE (Sturgeons).

Common Sturgeon, <i>Acipenser sturio</i> .....	5 years
Short-nosed Sturgeon, <i>Acipenser brevirostrum</i> .....	5 years

**TELEOSTEI.**

## Family SILURIDAE (Catfishes).

Gaff-topsail Catfish, <i>Felichthys marinus</i> .....	2 years
Sea-catfish, <i>Hexanematichthys felis</i> .....	2 years

## Family ANGUILLIDAE (Eels).

Common Eel, <i>Anguilla chrysypa</i> .....	7 years
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## Family LEPTOCEPHALIDAE (Conger Eels).

Conger Eel, <i>Leptocephalus conger</i> .....	1 year
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## Family ELOPIDAE (Tarpons).

Tarpon, <i>Tarpon atlanticus</i> .....	2 months
Big-eyed Herring, <i>Elops saurus</i> .....	1 week

## Family CLUPEIDAE (Herrings).

Hickory Shad, <i>Pomolobus mediacris</i> .....	10 months
Alewife, <i>Pomolobus pseudoharengus</i> .....	2 months
Glut Herring, <i>Pomolobus aestivalis</i> .....	2 months

Shad, <i>Alosa sapidissima</i> .....	Adult 1 week, young	2 weeks
Thread Herring, <i>Opisthonema oglinum</i> .....		a few days
Menhaden, <i>Brevoortia tyrannus</i> .....		2 years
Family ENGRAULIDAE (Silver Anchovies).		
Anchovy, <i>Stolephorus mitchilli</i> .....		1 year
Family ARGENTINIDAE (Smelts).		
Smelt, <i>Osmerus mordax</i> .....		6 months
Family POECILIIDAE (Killi-fishes).		
Common Killifish, <i>Fundulus heteroclitus</i> .....		4 years
Bass Killifish or Mayfish, <i>Fundulus majalis</i> .....		6 months
Variegated Minnow, <i>Cyprinodon variegatus</i> .....		2 years
Rainwater-fish, <i>Lucania parva</i> .....		1 to 2 months
Family ESOCIDAE (Needlefishes).		
Billfish, Silver Gar, <i>Tylosurus marinus</i> .....		1 week
Family HEMIRHAMPHIDAE (Halfbeaks).		
Half-beak, <i>Hyporhamphus roberti</i> .....		1 week
Family GASTEROSTEIDAE (Sticklebacks).		
Nine-spined Stickleback, <i>Pygosteus pungitius</i> .....		2 years
Four-spined Stickleback, <i>Apeltes quadracus</i> .....		4 years
Two-spined Stickleback, <i>Gasterosteus bispinosus</i> .....		2 years
Family SYNGNATHIDAE (Pipefishes).		
Common Pipefish, <i>Siphostoma fuscum</i> .....		6 months
Seahorse, <i>Hippocampus hudsonius</i> .....		1 ½ years
Family ATHERINIDAE (Silversides).		
Spearing, <i>Menidia notata</i> .....		2 years
Family MUGILIDAE (Mulletts).		
Common Mullet, <i>Mugil cephalus</i> .....		1 year
Family SPHYRAENIDAE (Barracudas).		
Northern Barracuda, <i>Sphyraena borealis</i> .....		2 months
Family AMMODYTIDAE (Sand Lances).		
Sand Lance or Sand Eel, <i>Ammodytes americanus</i> .....		1 week
Family MULLIDAE (Goat Fishes).		
Goatfish or Red Mullet, <i>Mullus auratus</i> .....		3 weeks
Family SCOMBRIDAE (Mackerels).		
Common Mackerel, <i>Scomber scombrus</i> .....		3 months
Chub Mackerel, <i>Scomber colias</i> .....		3 months
Bonito, <i>Sarda sarda</i> .....		3 months
Family CARANGIDAE (Pampanos).		
Runner or Leatherjacket, <i>Oligoplites saurus</i> .....		3 weeks
Pilotfish, <i>Naucrates ductor</i> .....		2 years
Amberfish, <i>Seriola lalandi</i> , 27-lb. fish .....		2 weeks
Rudderfish, <i>Seriola zonata</i> .....		5 months
Goggles or Big-eyed Scad, <i>Trachurops crumenophthalmus</i> .....		6 months
Yellow Mackerel or Crevalle, <i>Caranx crysos</i> .....		4 years
Crevalle, <i>Caranx hippos</i> .....		3 years
Threadfish, <i>Alectis ciliaris</i> .....		3 months
Silver Moonfish, <i>Selene vomer</i> .....		5 years

Moonfish or Blunt-nosed Shiner, <i>Vomer setipinnis</i> .....	3 years
Common Pampano, <i>Trachinotus carolinus</i> .....	3 years
Round Pampano, <i>Trachinotus falcatus</i> .....	3 years
Family POMATOMATIDAE (Bluefishes).	
Bluefish or Snapper, <i>Pomatomus saltatrix</i> .....	2 ½ years
Family CENTROLOPHIDAE (Rudderfishes).	
Rudderfish, <i>Palinurichthys perciformis</i> .....	6 months
Family STROMATEIDAE.	
Butterfish or Harvestfish, <i>Rhombus triacanthus</i> .....	1 month
Long-finned Harvestfish, <i>Rhombus paru</i> .....	1 month
Family SERRANIDAE (Sea-basses).	
Striped Bass, <i>Roccus lineatus</i> . (Brought in as two-year-old; will be 21 years old this spring, 1913) .....	19 years
White Perch, <i>Morone americana</i> .....	2 years
Black Sea-bass, <i>Centropristes striatus</i> .....	2 years
Family LOBOTIDAE (Triple-tails).	
Triple-tail or Flasher, <i>Lobotes surinamensis</i> .....	2 months
Sandfish, <i>Diplectrum formosum</i> .....	
Family PRIACANTHIDAE.	
Redfish, <i>Pseudopriacanthus altus</i> (a wanderer from the tropics) .....	16 months
Family HAEMULIDAE (Grunts).	
Pigfish or Sailors choice, <i>Orthopristis chrysopterus</i> .....	3 years
Family SPARIDAE (Porgies).	
Scup or Porgy, <i>Stenotomus chrysops</i> .....	4 years
Pinfish, <i>Lagodon rhomboides</i> .....	2 years
Sheepshead, <i>Archosargus probatocephalus</i> .....	5 years
Family SCIAENIDAE (Drum-fishes).	
Weakfish or Squeteague, <i>Cynoscion regalis</i> .....	5 years
Sea-Trout, <i>Cynoscion nebulosus</i> .....	3 weeks
Yellow-tail or Silver Perch, <i>Bairdiella chrysura</i> .....	6 months
Channel Bass, <i>Sciaenops ocellatus</i> .....	7 years
Spot or Lafayette, <i>Leiostomus xanthurus</i> .....	2 years
Croaker, <i>Micropogon undulatus</i> .....	2 years
Kingfish, <i>Menticirrhus saxatilis</i> .....	6 months
Sea-drum or Red-drum, <i>Pogonias cromis</i> .....	5 years
Banded Larimus, <i>Larimus fasciatus</i> .....	6 months
Family LABRIDAE (Wrasses).	
Tautog or Blackfish, <i>Tautoga onitis</i> .....	7 years
Cunner or Bergall, <i>Ctenolabrus adspersus</i> .....	4 years
Family EPHIPPIDAE (Spadefishes).	
Spadefish, <i>Chaetodipterus faber</i> .....	4 years
Butterflyfish, <i>Chaetodon ocellatus</i> .....	2 years
Family MONACANTHIDAE (Filefishes).	
Filefish or Leatherfish, <i>Monacanthus hispidus</i> .....	1 year
Orange Filefish, <i>Alutera schoepfi</i> .....	3 years



Family TETRAODONTIDAE (Puffers).	
Smooth Puffer or Rabbitfish, <i>Lagocephalus laevigatus</i> .....	6 months
Puffer or Swellfish, <i>Spheroides maculatus</i> .....	1 year
Family DIODONTIDAE (Porcupine Fishes).	
Spiny Boxfish or Burrfish, <i>Chylomycterus schoepfi</i> .....	3 years
Family COTTIDAE (Sculpins).	
Long-spined Sculpin, <i>Myoxocephalus octodecimspinosus</i> .....	6 months
Grubby or Mitchell's Sculpin, <i>Myoxocephalus aeneus</i> .....	6 months
Sea-robin, <i>Hemitripterus americanus</i> .....	2 years
Family CYCLOPTERIDAE (Lump Suckers).	
Lumpfish, <i>Cyclopterus lumpus</i> .....	2 months
Family TRIGLIDAE (Gurnards).	
Common Sea-robin or Gurnard, <i>Prionotus carolinus</i> .....	1 year
Striped Sea-robin or Gurnard, <i>Prionotus strigatus</i> .....	6 months
Southern Striped Sea-robin, <i>Prionotus evolans</i> .....	3 months
Family CEPHALACANTHIDAE (Flying Gurnards).	
Flying Sea-robin, <i>Cephalacanthus volitans</i> .....	6 months
Family GOBIIDAE (Gobies).	
Naked Goby or Oysterfish, <i>Gobiosoma boscii</i> .....	1 year
Family ECHENEIDIDAE (Remoras).	
Shark Sucker or Remora, <i>Echeneis naucrates</i> .....	1 year
Family URANOSCOPIDAE (Star Gazers).	
Stargazer, <i>Astroscopus guttatus</i> .....	6 months
Family BATRACHOIDIDAE (Toadfishes).	
Common Toadfish, <i>Opsanus tau</i> .....	4 years
Family BLENNIDAE (Blennies).	
Rock Eel, <i>Pholis gunnellus</i> .....	2 weeks
Family ZOARCIDAE (Eel Pouts).	
Eel Pout or Muttonfish, <i>Zoarces anguillaris</i> .....	6 months
Family OPHIDIIDAE (Cusk Eels).	
Slippery-dick, <i>Rissola marginata</i> .....	3 years
Family MERLUCIIDAE (Hakes).	
Whiting or Silver Hake, <i>Merluccius bilinearis</i> .....	6 months
Family GADIDAE (Codfishes).	
Pollack, <i>Pollachius virens</i> .....	6 months
Tomcod or Frostfish, <i>Microgadus tomcod</i> .....	6 months
Common Codfish, <i>Gadus callarias</i> .....	6 months
Haddock, <i>Melanogrammus aeglefinus</i> .....	6 months
Spotted Codling, <i>Urophycis regius</i> .....	6 months
White Hake, <i>Urophycis tenuis</i> .....	6 months
Squirrel Hake, <i>Urophycis chuss</i> .....	6 months
Family PLEURONECTIDAE (Flounders).	
Summer Flounder or Fluke, <i>Paralichthys dentatus</i> .....	6 months
Four-spotted Flounder, <i>Paralichthys oblongus</i> .....	6 months
Winter Flounder, <i>Pseudopleuronectes americanus</i> .....	1 year
Window Pane or Star Flounder, <i>Lophopsetta maculata</i> .....	6 months

## Family SOLEIDAE (Soles).

American Sole or Hog-choker, *Archirus fasciatus* ..... 1 year

## Family LOPHIIDAE (Anglers).

Common Angler or Goosefish, *Lophius piscatorius* ..... 6 months

Sargasso-fish or Mouse-fish, *Pterophyrne histrio* ..... 2 weeks

## MARINE FISHES

(Tropical, from Bermuda and Key West, Florida).

## Family SILURIDAE (Catfishes).

Sea-catfish or Gaff-topsail, *Felichthys marinus* ..... 2 years

Sea-catfish, *Hexanematichthys felis* ..... 2 years

## Family MURAENIDAE (Morays).

Spotted Moray, *Lycodontis moringa* ..... 3 years

Brown Moray, *Lycodontis* sp. .... 1 year

Green Moray, *Lycodontis funebris* ..... 4 years

Striped Moray, *Channomuraena vittata* ..... 3 months

## Family HOLOCENTRIDAE (Squirrel-fishes).

Squirrel-fish, *Holocentrus ascensionis* ..... 5 years

Squirrel-fish, *Holocentrus siccifer* ..... 1 week

## Family CARANGIDAE (Pampanos).

Pilotfish, *Naucrates ductor* ..... 3 years

Amberfish, *Seriola lalandi* ..... 5 years

Common Crevalle, *Caranx hippos* ..... 2 years

Yellow Mackerel, *Caranx crysos* ..... 2 years

Horse-eye Jack, *Caranx latus* ..... 6 months

## Family CHEILODIPTERIDAE (Cardinal Fishes).

Marine Goldfish, *Apogon sellicauda*. Received in poor condition ..... 1 week

## Family CENTROPOMIDAE (Robalos).

Snook, *Centropomus undecimalis* ..... 4 months

## Family SERRANIDAE (Sea Basses).

Graysby or Coney, *Petrometopon cruentatus* ..... 2 years

Coney or Butterfish, *Bodianus fulvus* ..... 3 years

Coney or Butterfish, *Bodianus fulvus*, var. *ruber* ..... 3 years

Coney or Butterfish, *Bodianus fulvus*, var. *punctatus* ..... 3 years

Red Grouper, *Epinephilus morio* ..... 7 years

Red Hind, *Epinephilus maculosus* ..... 3 years

Rock Hind, *Epinephilus adscensionis* ..... 1 year

Nassau Grouper, *Epinephilus striatus* ..... 7 years

Spotted Jewfish, *Promicrops guttatus* ..... 3 years

Red Niggerfish or Butter-hamlet, *Alphestes chloropterus* ..... 6 months

Yellow-finned Grouper, *Mycteroperca venenosa* ..... 4 years

Black Grouper, *Mycteroperca bonaci* ..... 4 years

Scamp, *Mycteroperca falcata* ..... 1 year

Tiger Rockfish, *Mycteroperca tigris* ..... 5 years

Soapfish, *Rypticus bistrispinus* ..... 2 years

## Family LUTIANIDAE (Snappers).

Gray Snapper, *Neomaenis griseus* ..... 7 years

Dog Snapper, <i>Neomaenis jocu</i> .....	1 year
Schoolmaster, <i>Neomaenis apodus</i> .....	2 years
Muttonfish, <i>Neomaenis analis</i> .....	2 years
Red Snapper, <i>Neomaenis aya</i> .....	2 years
Lane Snapper, <i>Neomaenis synagris</i> .....	7 years
Yellow-tail, <i>Ocyurus chrysurus</i> .....	3 years
Family HAEMULIDAE (Grunts).	
Margate, <i>Haemulon album</i> .....	2 years
Black Grunt, <i>Haemulon bonariense</i> .....	2 years
Gray Grunt, <i>Haemulon macrostomum</i> .....	1 year
Common Grunt, <i>Haemulon plumieri</i> .....	1 year
Yellow Grunt, <i>Haemulon flavolineatum</i> .....	2 years
Blue-striped Grunt, <i>Haemulon striatum</i> .....	5 years
Tom Tate, <i>Bathystoma rimator</i> .....	2 years
White Grunt, <i>Bathystoma striatum</i> .....	2 years
Pompon or Black Margate, <i>Aniostremus surinamensis</i> .....	1 year
Porkfish, <i>Aniostremus virginicus</i> .....	1 year
Pigfish or Sailors Choice, <i>Orthopristis chrysopterus</i> .....	3 years
Family SPARIDAE (Porgies).	
Jolthead Porgy, <i>Calamus bajonado</i> .....	1 year
Saucer-eye Porgy, <i>Calamus calamus</i> .....	1 year
Grass Porgy, <i>Calamus arcifrons</i> .....	1 year
Sheepshead, <i>Archosargus probatocephalus</i> .....	4 years
Bream, <i>Diplodus argenteus</i> .....	1 year
Family KYPHOSIDAE (Rudderfishes).	
Bermuda Chub, <i>Kyphosus sectatrix</i> .....	1 year
Family SCIAENIDAE (Drumfishes).	
Cubbyu, <i>Eques acuminatus</i> .....	2 years
Croaker, <i>Micropogon undulatus</i> .....	1 year
Family POMACENTRIDAE (Demoiselles).	
Beau Gregory, <i>Eupomacentrus leucostictus</i> .....	3 years
Sergeant Major, <i>Abudefduf saxatilis</i> .....	2 years
Family LABRIDAE (Wrasses).	
Hogfish, <i>Lachnolaimus maximus</i> .....	2 years
Spanish Hogfish, <i>Harpe rufa</i> .....	2 years
Slippery-dick, <i>Iridio bivittatus</i> .....	1 year
Doncella, <i>Iridio garnoti</i> .....	8 years
Doncella, <i>Iridio radiatus</i> .....	8 years
Kelpfish, <i>Iridio meyeri</i> .....	8 months
Bluehead, <i>Chlorichthys bifasciatus</i> .....	1 month
Family SCARIDAE (Parrotfish).	
Red Parrotfish, <i>Sparisoma abildgaardi</i> .....	2 months
Green Parrotfish, <i>Sparisoma viride</i> .....	3 months
Mud Parrotfish, <i>Sparisoma flavescens</i> .....	1 month
Blue Parrot of Mudfish, <i>Scarus vetula</i> .....	9 months
Blue Parrot or Mudfish, <i>Scarus caeruleus</i> .....	9 months
Brown or Green Parrotfish, <i>Pseudoscarus guacamaia</i> .....	2 years

Family EPHIPPIDAE (Spadefishes).		
Spadefish, <i>Chaetodipterus faber</i> .....	3	years
Family CHAETODONTIDAE (Butterfly-fishes).		
Butterfly-fish, <i>Chaetodon ocellatus</i> .....	2	years
Four-eyes, <i>Chaetodon capistratus</i> .....	1	year
Black Angel, <i>Pomacanthus arcuatus</i> .....	1 ½	years
Blue Angel, <i>Angelichthys ciliaris</i> .....	5	years
Queen Angel, <i>Angelichthys</i> sp. ....		
Family TEUTHIDIDAE (Surgeonfishes).		
Blue Tang, <i>Teuthis caeruleus</i> .....	1	year
Surgeonfish, <i>Teuthis hepatus</i> .....	5	years
Yellow Surgeonfish, <i>Teuthis helioides</i> .....	2	weeks
Family BALISTIDAE (Triggerfishes).		
Ocean Turbot, <i>Canthidermis maculatus</i> .....	1	year
Common Triggerfish, <i>Balistes carolinensis</i> .....	5	years
Queen Triggerfish, <i>Balistes vetula</i> .....	3	years
Family MONACANTHIDAE (Filefishes).		
Leatherfish, <i>Monacanthus ciliatus</i> .....	8	months
Filefish, <i>Monacanthus hispidus</i> .....	1	year
Orange Filefish, <i>Alutera schoepfi</i> .....	3	years
Unicorn-fish, <i>Alutera scripta</i> .....	6	months
Family OSTRACIDAE (Trunkfishes).		
Trunkfish, <i>Lactophrys triqueter</i> .....	2	years
Cowfish, <i>Lactophrys tricornis</i> .....	2	years
Buffalo Trunkfish, <i>Lactophrys trigonus</i> ..... (still living)	3	months
Family TETRAODONTIDAE (Puffers).		
Southern Puffer, <i>Spheroides spengleri</i> .....	1	year
Family DIODONTIDAE (Boxfishes).		
Porcupine-fish, <i>Diodon hystrix</i> .....	4	months
Family SCORPAENIDAE (Rockfishes).		
Lion-fish, <i>Scorpaena grandicornis</i> .....	1	year
Family ECHENEIDIDAE (Remoras).		
Shark-sucker, <i>Echeneis naucrates</i> .....	1	year
Family BLEMNIDAE (Blennies).		
Molly Miller, <i>Blennius cristatus</i> .....	1	year
Molly Miller, <i>Salariichthys textilis</i> .....	1	year

**List of Gifts**  
**TO THE ZOOLOGICAL SOCIETY**

*From January 1, 1912. to January 1, 1913.*

- ADLER, JOSEPH A., New York City:  
Opossum.
- ALLEN, MRS. EDWARD, New York City:  
Gray Squirrel.
- ANNIS, HOWARD, New York City:  
Alligator.
- ARITRORUS, MRS. J. J., Medford, Mass.:  
Alligator.
- BAIL, S. C., New Haven, Conn.:  
Box Turtle.
- BAILEY, HARRY, New York City:  
Opossum (2 specimens).
- BARRIE, CASWELL, New York City:  
1 Canary, 1 Java Sparrow.
- BARSOTTI, CHARLES, Fort Lee, N. J.:  
Copperhead Snake.
- BARTII, ERNEST, New York City:  
1 Black Snake, 1 Milk Snake.
- BARTLETT, CAPT. R. A., New Haven, Conn.:  
Hooded Seal (5 specimens).
- BAUMANN, GEORGE, New York City:  
Screech Owl.
- BELL, MR., Chief Steward, S.S. "Philadelphia," New York City:  
Brunnich Murre.
- BENNETT, D. L., Plainfield, N. J.:  
Screech Owl.
- BERNSTEIN, NORMAN, New York City:  
Chipmunk.
- BIERWIRTH, DR., J. C., Brooklyn, N. Y. C.:  
South American Red Squirrel.
- BIHLER, A. D. H., New York City:  
Green-Cheeked Amazon Parrot.
- BLAIR, C. LEDYARD, New York City:  
Black Sapajou Monkey.
- BLUMSTIEL, MASTERS E. and R., New Rochelle, N. Y.:  
European Blackbird.
- BONDY, MRS. RICHARD C., New York City:  
Chameleon (3 specimens).
- BOSTOCK FRANK C. (through Dr. Buckley), Brooklyn, N. Y. C.:  
Rattlesnake (4 specimens).
- BOUGHTON, JR., EDWARD W., New York City:  
Golden Eagle.
- BRENNER, MISS JANET W. (through Mr. Charles Brenner), Englewood, N. J.:  
American Red Fox.
- BREY, FRED., New York City:  
Alligator.
- BROWN, E. C., New York City:  
1 Snapping Turtle, 2 Wood Tortoises.

- BROWN, OSCAR T., New York City:  
Gopher Tortoise.
- BROWN, W. M., New York City:  
Common Marmoset.
- CADIGAN, EDWARD MAURICE, Mount Vernon, New York:  
Red-Shouldered Hawk.
- CARTER, T. DONALD, Boonton, N. J.:  
Black Snake (2 specimens).
- CASTLE, MRS. VERNON, New Rochelle, N. Y.:  
White-Faced Sapajou.
- CHEESEMAN, MRS. K. S., New York City:  
Hooded Sapajou.
- CHILDS, MRS. C., New York City:  
Squirrel Monkey.
- CHOLWELL, MRS. G. C., New York City:  
Grass Parrakeet.
- CHURCH, F. E., New Rochelle, N. Y.:  
European Goldfinch.
- COHEN, J. P., New York City:  
Yellow-Fronted Amazon Parrot.
- COLEMAN, MRS. A. C., New York City:  
Tovi Parrakeet.
- COLEMAN, MISS LOUISE, Kennebunk Beach, Me.:  
Java Monkey, (2 specimens).
- CONSTANTINE, O. J., Brooklyn, N. Y. C.:  
Bullfinch.
- COSTER, H. A., Westchester, New York City:  
Raccoon.
- CROSBY, MAUNSELL S., Rhinebeck, N. Y.:  
Holboell Grebe (2 specimens).
- CURTIN, F. J., Hinsdale, Mass.:  
Green-Winged Macaw.
- DEEDE, EDWARD, New York City:  
Snapping Turtle.
- DELANO, EUGENE, New York City:  
Yellow-Fronted Amazon Parrot.
- DIEBALK, OTTO, Jersey City, N. J.:  
Raccoon.
- DOMMIN, CELLADOR, Williamsbridge, New York City:  
1 Snapping Turtle, 1 Box Turtle.
- DURIEUX, MISS LEONILDA, New York City:  
Painted Turtle.
- EDWARDS, J. T., Tacoma, Washington:  
Rubber Boa.
- FEIBER, SAMUEL L., New York City:  
White-Faced Sapajou.
- FELLOWS, EARL W., Chatham, N. Y.:  
16 Painted Turtles, 1 Snapping Turtle. Total, 17 specimens.
- FRANKLIN, M., New York City:  
2 Rattlesnakes, 1 Western Pilot Blacksnake.
- FROST, A. D., Bronxville, N. Y.:  
Gray Wolf.
- FROST, MRS. WILLIAM N., New York City:  
Blue-Fronted Amazon Parrot.
- GALLATIN, FREDERICK, Noroton, Conn.:  
8 European Oyster-Catchers, 3 European Curlews, 1 Bar-Tailed Godwit.  
Total, 12 specimens.

- GANDING, E. W., Canajoharie, N. Y.:  
6 Holboell Grebes, 1 Canada Goose. Total, 7 specimens.
- GEIGER, H., New York City:  
Brown Thrasher.
- GELBACH, DR. R. WILLIAM, Hoboken, N. J.:  
Opossum.
- GILHAR, MRS., New York City:  
Japanese Red-Faced Monkey.
- GILLAM, ARTHUR L., Flushing, L. I., N. Y.:  
2 Banded Rattlesnakes, 1 Copperhead Snake.
- GOOD, L. C., S.S. "Visari," Brooklyn, New York City:  
Ocelot.
- GRISWOLD, MRS. F. M., New York City:  
Surf Scoter.
- GROVE, MRS., New York City:  
Canary.
- GUIZ, MARIA, Brooklyn, New York City:  
Troupial.
- HANDSWORTH, MR., Jersey City Heights, N. J.:  
Coyote.
- HAWKINS, MRS. E., New York City:  
Napoleon Weaver (2 specimens).
- HEIDERMAN, JULIUS, New York City:  
Box Turtle.
- ENDERSON, MRS. WILLIAM, Westchester, N. Y.:  
Ring Parakeet.
- HERMANN, MRS. J., New York City:  
Canary (3 specimens).
- HOE, MISS MARGARET, New York City:  
Gray-Headed Lovebird (2 specimens).
- HOFFMANN, V., New York City:  
Saw-Whet Owl.
- HOLLISTER, MASTER W. DICKERMAN, New Rochelle, N. Y.:  
Tovi Parakeet (3 specimens).
- HORSBRUGH, MAJOR B. R., London, England:  
1 Black-Bellied Sand Grouse, 1 European Roller.
- HOTCHKISS, MRS. CHARLES E., New York City:  
Cockatiel.
- HOWARD, FRANK M., Newark, N. J.:  
Alligator (2 specimens).
- HOWD, CHARLES A., Stony Creek, Conn.:  
Gray Fox (2 specimens).
- HOWELL, T. A., West Hartland, Conn.:  
Great Horned Owl (2 specimens).
- HOYER, MAX, New York City:  
Box Turtle.
- HOYT, EDWARD C., New York City:  
Sapajou Monkey.
- HULBERT, MASTER LOUIS, New York City:  
Wood Tortoise.
- HUNT, ARTHUR P., New York City:  
American Crow (2 specimens).
- HURTER, SR., JULIUS, St. Louis, Mo.:  
Rattlesnake (2 specimens).
- JACKSON, MRS. ROBERT G., Yonkers, N. Y.:  
2 Zebra Finches, 2 Strawberry Finches, 1 Cordon Bleu. Total, 5 specimens.
- JACOBSEN, CAPT., Brooklyn, N. Y. C.:  
Globose Curassow.

- JANSSEN, F. W., Hoboken, N. J.:  
Barred Owl.
- JOHNSON, MR.,  
Horned Toad (2 specimens).
- JUST, CARL, New York City:  
Alligator.
- KELLY, JOHN, New York City:  
Screech Owl.
- KETCHEN, FRED., New York City:  
Frog (2 specimens).
- KETTLING, EDWARD, New York City:  
Common Opossum.
- KING, M. L., New York City:  
Owl Monkey.
- KIRSCHBAUM, R. W., Newark, N. J.:  
Flying Squirrel (2 specimens).
- JUNIOR AUXILIARY OF THE NEW YORK ZOOLOGICAL SOCIETY, New York City:  
Kadiak Bear.
- KNEESHAW, JAMES, New York City:  
Banded Rattlesnake (2 specimens).
- KOLLER, GEORGE, Brooklyn, N. Y. C.:  
Sparrow Hawk.
- KUBLER, GUS, New York City:  
Alligator (2 specimens).
- KUSER, COL. ANTHONY R., Bernardsville, N. J.:  
2 Great Horned Owls, 1 Red-Shouldered Hawk.
- LAWRENCE, MASTER DUDLEY, Yonkers, N. Y.:  
Alligator.
- LEE, D., Benson, Md.:  
Red-Tailed Hawk (2 specimens).
- LEIN, BENJAMIN, New York City:  
Painted Turtle.
- LENTELLI, MRS. LEON, New York City:  
Musk Turtle.
- LEONHARD, E., Wakefield, New York City:  
Opossum.
- LETKEMANN, HERMAN, New York City:  
Snake-Necked Turtle.
- LEVIE, MRS. GEORGE W., Mount Vernon, N. Y.:  
Aztec Conure (2 specimens).
- LEWIS, R., Bayonne, N. J.:  
Mongoose.
- LINCOLN PARK ZOO (through C. B. D'Vry, Director), Chicago, Ill.:  
Texas Diamond-Backed Rattlesnake (2 specimens).
- LITTLE, MRS. E. H., West Hoboken, N. J.:  
Red Fox (3 specimens).
- LONGWELL, F. B., New York City:  
Gopher Tortoise.
- LORSCH, MRS., New York City:  
Indigo Bunting.
- LUNTON, N. K., Banff, Alberta, Canada:  
Silver-Tip Grizzly Bear.
- LYON, W. A., New York City:  
Painted Turtle.
- McBRIDE, MRS., New York City:  
Sparrow Hawk.
- McCoy, Mrs. M., New Rochelle, N. Y.:  
Canary.



- McDOUGALD, Mrs. M., New York City:  
Bull Snake.
- McVEY, GEORGE, Oyster Bay, L. I., N. Y.:  
Albino Alligator.
- MACK, Mrs. J. F., New York City:  
Ring-Tailed Monkey.
- MACK, WILLIAM, New York City:  
Mockingbird.
- MACY, Mr., New York City:  
Alligator.
- MADIGAN, A. M., Brooklyn, New York City:  
Santa Domingo Amazon Parrot.
- MAHONEY, Miss M., New York City:  
Guineafowl.
- MARSH, HENRY, Waltham, Mass.:  
Texas Horned Toad.
- MARTENS, HERMAN, Yonkers, N. Y.:  
Common Macaque.
- MARTIN, F. M., New York City:  
Gila Monster.
- MARTIN, Dr. T. J., Allentown, Pa.:  
Ring-Tailed Monkey.
- MASTERS, Miss Rose (through Mr. Gerard A. Masters), Pitts Bay, Bermuda:  
1 Mealy Amazon Parrot, 1 Yellow-Fronted Amazon Parrot.
- MAURER, Dr. EDWARD, New York City:  
Gila Monster.
- MAY, Dr. WILLIAM, New York City:  
Common Marmoset.
- MEAD, T. C., Passaic, N. J.:  
Belted Kingfisher.
- MEARNS, Miss GRACE A., New York City:  
Skylark.
- MELDER, L., New York City:  
1 Java Sparrow, 1 Canary.
- MILLS, V. S., New York City:  
Copperhead Snake.
- MILLWARD, Russel Hastings, New York City:  
Striped-Tailed Fox.
- MOLIER, EUGENE, Fort Lee, N. J.:  
Copperhead Snake.
- MORRETTA, ANTHONY, New York City:  
American Bittern.
- MUGLER, A., New York City:  
1 Alligator, 1 Slider Terrapin.
- MUNZER, JOHN A., New York City:  
Opossum (2 specimens).
- NAEGELEN, JOE A., New York City:  
Central American Boa.
- NEW YORK AQUARIUM, New York City:  
Spade-Footed Toad (41 specimens).
- NEW YORK TANNING EXTRACT COMPANY, New York City:  
2 Tegus, 1 Palm Viper, 1 South American Racer. Total, 4 specimens.
- NEW YORK ZOOLOGICAL SOCIETY, Junior Auxiliary, New York City:  
Kadiak Bear.
- OLIVER, D., New York City:  
Cutthroat Finch (2 specimens).
- OLSEN, Mrs., New York City:  
Fish Crow.

- PAINE, A. G., New York City:  
Squirrel Monkey.
- PAUL, JOHN T., Watertown, Fla.:  
Golden Eagle.
- PAUL, MRS. LOUISE, New York City:  
4 Canaries, 1 Chaffinch.
- PEARSE, M. S., Mantoloking, N. J.:  
Great Horned Owl.
- PELL, S. OSGOOD, New York City:  
Polar Bear.
- PELTON, HENRY V., Poughkeepsie, N. Y.:  
Yellow-Winged Sugar-Bird (2 specimens).
- PETERS, MRS. JOHN H., Williamsbridge, New York City:  
Painted Turtle.
- PHILIP, MRS. DAVID, Jersey City, N. J.:  
Raccoon.
- PLACE, MRS. S. L., Port Richmond, S. I., N. Y.:  
Screech Owl (2 specimens).
- PLANER, C., Hoboken, N. J.:  
Starling.
- POCHER, J. THORNTON, New York City:  
Alligator.
- PRICE, MASTER THOMAS GRENVILLE, New York City:  
Florida Alligator.
- PULVER, R., New York City:  
Alligator.
- RATNES, RICHARD, New York City:  
Chameleon (2 specimens).
- RAUSCH, MRS. EDWARD, Weehawken, N. J.:  
Pig-Tailed Monkey.
- RAYMOND, JAMES LUDLOW, New York City:  
Woolly Raccoon.
- REIFFEN, MISS ROSE, New York City:  
Box Turtle.
- RELYEA, B. F., Mount Vernon, N. Y.:  
Red Fox.
- RICHARDSON, JENNESS, New York City:  
Bullfrog.
- ROBBINS, A. AND M., New York City:  
Turkey Vulture.
- ROBERTSON, JOHN MCP., Shippensburg, Pa.:  
Raccoon (3 specimens).
- ROBESON, MISS, Brooklyn, N. Y. C.:  
Starling.
- ROBINSON, CHARLES, MAY AND WALTER, Brooklyn, N. Y. C.:  
White-Faced Sapajou.
- ROBINSON, JR., J. K., Pelham Manor, N. Y.:  
Florida Alligator (2 specimens).
- ROSENBERGER, EDWARD, City Island, N. Y.:  
Spotted Turtle (2 specimens).
- RUPOECHT, MRS. C. F., New York City:  
Alligator.
- RUSSELL, WILLIAM W., Bristol, Conn.:  
Horned Toad (2 specimens).
- RUTHLING, PAUL R., New York City:  
10 Garter Snakes, 9 Ribbon Snakes, 1 Water Snake, 1 Green Snake, 1 De  
Kay Snake. Total, 22 specimens.

- RUTHVEN, DR. ALEXANDER G., Ann Arbor, Mich.:  
1 Coyote, 1 Snapping Turtle.
- SARGO, JOHN, New York City:  
Yellow-Headed Amazon Parrot.
- SATTler, A., New York City:  
Screech Owl.
- SCHÖENE, ALVINA, New York City:  
Box Tortoise.
- SEGGERUCH, RUDOLF, S.S. "Kronprinz Wilhelm," Hoboken, N. J.:  
Whimbrel.
- SEMPLE, MRS. LORENZO, Mount Kisco, N. Y.:  
Green Monkey.
- SEVERDING, MISS ANNA, New York City:  
Horned Toad (2 specimens).
- SHAW, WILLIAM A., Bay Ridge, N. Y.:  
Mastigure.
- SHERMAN, PEARCE W., Burrsville, N. J.:  
Great Horned Owl.
- SIGLER, MRS. L., New York City:  
2 Spice Mannikins, 1 Red-Billed Weaver.
- SNIDER, GEORGE AND MANICA, New York City:  
Alligator (2 specimens).
- SPANGLER, JOHN BAYARD, New York City:  
Saw-Whet Owl.
- STAM, DR. H. VAN RENKEN, S.S. "Albionia," New York City:  
Murine Opossum.
- STATE CONSERVATION COMMISSION (through Llewellyn Legge, Chief Game Protector), Albany, N. Y.:  
Holboell Grebe.
- STATHER, W. H., Chief Engineer, S.S. "Koranna," New York City:  
Indian Jackal.
- STEINBACK, D. R., Pelham, N. Y.:  
Screech Owl.
- STUIR, F. A., Portland, Ore.:  
Yellow-Breasted Bunting (3 specimens).
- TAUNTON, WILLIAM H., New York City:  
Angora Rabbit.
- THOMPSON, W. T., New York City:  
Common Marmoset.
- THURSTON, HENRY, New York City:  
Chicken Snake (2 specimens).
- TRUTE, WILHELM, New York City:  
Brambling.
- TYLER, MISS HELENE G., Salisbury Mills, N. Y.:  
Gray Fox.
- VAN BUEHREN, GEORGE, New York City:  
Spotted Turtle (9 specimens).
- VAN FOTT, MRS. A., New York City:  
Toví Parrakeet.
- VARIAN, H. E., Yonkers, N. Y.:  
Raccoon.
- VIERCK, CHARLES, New York City:  
Alligator.
- VINSON, A. E., Tucson, Ariz.:  
Horned Toad.
- WAUGH, F. C., Montclair, N. J.:  
4 Water Snakes, 2 Garter Snakes, 1 Milk Snake. Total, 7 specimens.

WESTERBURG, AUGUST, New York City:

Raccoon.

WHIFFEN, EDWIN T., New Rochelle, N. Y.:

80 Garter Snakes, 10 Water Snakes, 10 Milk Snakes, 9 De Kay Snakes, 4 Ribbon Snakes, 3 Massasaugas. Total, 116 specimens.

WHITTALL, MRS. WILLIAM VAN RENSSELAER, Pelham, N. Y.:

Bullfinch.

WHITNEY, HARRY, New Haven, Conn.:

Hooded Seal (5 specimens).

WICKE, WILLIAM, New York City:

Alligator.

WILEY, A., New York City:

2 Canaries, 2 Java Sparrows, 2 Cockatiels, 1 Grenadier Weaver, 1 Red-Billed Weaver, 1 Russ Weaver, 1 Rock Bush Quail, 1 Long-Tailed Namaqua Dove. Total, 11 specimens.

WILKINSON, A. T., New York City:

Canary.

WILKINSON, FORMAN, Syracuse, N. Y.:

Holboell Grebe (2 specimens).

WILSON, MARSHALL, Brooklyn, N. Y. C.:

Alligator.

WILSON, R. CARR, La Gloria, Province of Camaguey, Cuba:

Cuban Boa.

WOOD, BENJAMIN, New York City:

White-Nosed Coati-Mundi.

WORTH, A., New York City:

Hog-Nosed Snake.

YARDLEY, REV. T. H., Stockbridge, Mass.:

Alligator.

YOUNG, MRS. FLORENCE, New York City:

Canary (3 specimens).

YOUNT, A. W., Oruro, Bolivia, S. A.:

South American Condor (2 specimens).

### Miscellaneous List

McMILLIN, EMERSON, New York City:

Large Oil Painting of Rocky Mountain Sheep in the Mountains of Alberta, entitled, "*The Mountaineers*" (60" x 75"), by Carl Rungius

### Gifts of Plants

JOY, MRS. H. H., New York City:

1 *Dracaena massangeana*.

RONNER, JOHN H. J., New York City:

3 Agaves.

ROTH, MRS., New York City:

1 Rubber Plant.

VOSS, JOHN H., New York City:

1 *Agave americana*, 1 Orange Tree, 2 small Magnolias.

WISSMANN, MRS. F. D. R., Westchester, N. Y.:

2 *Kentia belmoriana* Palms, 1 *Cycas revoluta*.

### Gifts to the Library

BEEBE, C. WILLIAM, New York City:

A Collection of Maps of Asia and Australia, used by Mr. Beebe in the Far East, comprising the following:

- Novradkust Java, Java, United Province of Agra and Onah, Ceylon (2 maps), Borneo, Sketch Map of Fed. States of Malay Railway, Maps of Borneo, Sumatra, Java and Madevara, Province of Africa (3 maps), Kleine Soenad Eilander, Pahang-Fed. Malay States, Imperial Gov. Railways, Malay Peninsula (10 maps), China and Japan (2 maps), Selangor-Fed. Malay States, Celebes, Indeschin Archipel (6 maps), Indian Sheets 1, 3, 5 and 6.
- BRITISH MUSEUM OF NATURAL HISTORY, The Trustees of the, London, England:  
Fresh Water Fishes of Africa. 2 volumes.
- BUTLER, AMOS W., Indianapolis, Ind.:  
11 Ornithological Papers, by A. W. Butler.
- EDGAR, NEWBOLD, New York City:  
Portraits of the Game and Wild Animals of Southern Africa, by Capt. W. Cornwallis Harris, 1840.
- GRANT, MADISON, New York City:  
A Tour Through the Animal World, by the Chevalier Denis de Coetlogon, 1746.
- GRINNELL, J., Berkeley, California:  
28 Pamphlets on Mammals, Birds, Reptiles and Research, by various authors.
- SMITHSONIAN INSTITUTION, Washington, D. C.:  
The Birds of North and Middle America, by Robert Ridgway, (Bulletin of the United States National Museum No. 50), Volumes 1, 2, 3, 4 and 5.
- SOCIEDAD ESPAÑOLA DE HISTORIA NATUREL, Madrid, Spain:  
Bulletins, 1 to 7.  
Memoirs, 1, 2 and 3 Vol. VII, 1 and 2 Vol. VIII.
- WOOD, NORMAN A., Ann Arbor, Mich.:  
Michigan Bird Life. Barrows.  
Ecological Survey of N. Michigan.  
12 Zoological Papers by N. A. Wood.

### List of Gifts to the National Collection of Herds and Heros

*April 1, 1912, to April 1, 1913.*

- CALBREATH, J. FRANK, Telegraph Creek, B. C.:  
Osborn Caribou (*Rangifer osborni*). Antlers.
- HAVEMEYER, F. C., New York City:  
Osborn Caribou, (*Rangifer osborni*). Mounted Head. (World's record).
- HOOPER, WILLIAM R., New York City:  
Virginia Deer (*Odocoileus virginianus*). Mounted Head of doe with Antlers.
- OSBORN, FREDERICK H., New York City:  
Wide-Horned White Mountain Sheep, (*Ovis dalli*). Mounted Head.
- POTTER, JAMES BROWN, New York City:  
Four-Horned Sheep, (*Ovis aries*). Mounted Head.
- SIMMS, FREDERICK R., New York City:  
Chamois, (*Rupicapra tragus*). Mounted Head. (Personal Trophy).

# List of Gifts TO THE AQUARIUM

January 1, 1912, to January 1, 1913.

- ALDRICH, MR. WILLIAM, Brooklyn, N. Y. C.:  
Box Tortoise.
- AUSTIN, MR. C. A., JR., Orange, N. J.:  
Brook Pickerel, Painted Turtle, Salamander.
- BISHOP, MR. HENRY, Baltimore, Md.:  
Large fancy Goldfishes (12 specimens).
- BORKER, MR. AMOS, Brooklyn, N. Y. C.:  
Box Turtle.
- BRAITHWAIT, MR. HENRY, Brooklyn, N. Y. C.:  
Side-Necked Turtle from the Amazon River.
- BRUCE, MR. E. K., Thornburg, Iowa:  
Comet Goldfishes 6" to 12" in length 21, Pearl Nymph (white), Red Nymph  
2, American Fans 2, Comet Fantails 2, Small Comet Fish 4. Total,  
31, 5 varieties.
- BUEB, MR. E., New York City:  
Young Green Turtle.
- COHEN, MR. ABRAHAM, New York City:  
Elephant Tortoise.
- DALY, MISS LULU, New York City:  
2 painted Turtles.
- DAY, MR. C. N., New York City:  
2 small Alligators.
- DEKHAM, MR. H. C. CASIMIR, New York City:  
Large specimen Mounted Tarpon.
- FRAME & Co., New York City:  
Hawksbill Turtle.
- GIARDOL, MR. ALFRED, Brooklyn, N. Y. C.:  
Box Turtle.
- GRANT, MRS. J. E., San Francisco, Cal.:  
26 Nassau Crabs, 51 Spiny Lobsters.
- GREENLEE, MR., Engineer S.S. "Comal," Mallory Line, New York City:  
2 Shark Suckers, 3 Gaff Topsail Catfish, Ocean Catfish, Snook.
- GUNN, MR., Stapleton, Staten Island, N. Y.:  
Spiny Boxfish.
- HADLEY, MR. J. H., New York City:  
Porcupine-Fish.
- HAYMAN, MR. ISADORE, Brooklyn, N. Y. C.:  
Diamond Backed Terrapin.
- HERZENBERG, MR. HERBERT, New York City:  
Yellow Bellied Slider, 2 small Alligators.
- HENZ, MR. F. C., Bronx, New York City:  
Sea Horse.
- HEYN, MR. FREDERICK, Ridgefield Park, N. J.:  
Small Alligator.
- HUMMELL, MRS. AGNES, Vauxhall, N. J.:  
Young Alligator.
- IMMEN, MR. BURTON, New York City:  
Spotted Turtle.

- INRE, MR. LOUIS, New York City:  
Painted Turtle, Box Turtle.
- KAMM, MISS A., New York City:  
Collection of Seashells.
- KAPF, MR. CHARLES, Newark, N. J.:  
Small Alligator:
- KROEGER, MR. RICHARD, Brooklyn, N. Y. C.:  
Painted Turtle.
- LARD, MASTER JOHN HAWLAND, New York City:  
Snapping Turtle.
- LINDER, MR. GUSTAV A., New York City:  
Small Alligator.
- LLOYD, MR. C. S., Brooklyn, N. Y. C.:  
Collection of fancy Goldfishes, 5 species.  
Young East Indian Shubunkins, Young Chinese Mottled Blue, Young Lion-Head, Young Fringe-Tailed, Young Dragon-Eyed.
- MABIE, MR. CHARLES H., New York City:  
10 large Pickerel.
- MAHRMANN, MRS., New York City:  
Painted Turtle.
- MEYERS, MR. HYMAN, New York City:  
Spotted Turtle.
- MILLER, CAPT. C., Clifton, Staten Island, N. Y.:  
2 Map Turtles, Cumberland Turtle.
- MILLER, S. B., & COMPANY, New York City:  
American Sole.
- MOSEH, MR. ARTHUR, North Plainfield, N. J.:  
Small painted Turtle.
- MOSS, MR. BENJAMIN H., Brooklyn, N. Y. C.:  
Young Alligator.
- MULLIGAN, MR. BERNARD, New York City:  
Sea Horse.
- NEW YORK CONSERVATION COMMISSION (through Dr. T. H. Bean, State Fish Culturist), Albany, N. Y.:  
Collection of fishes exhibited at the Sportsmen's Show in New York, 10 Brown Trout, 8 Rainbow Trout, 53 Brook Trout, 7 Lake Trout, 58 Yellow Perch, 8 Pike Perch, 2 White Perch, 3 Burbot, 3 Muscullunge, 18 Chain Pickerel, 11 Banded Pickerel, 3 large-mouthed Bass, 2 small-mouthed Bass, 3 Sturgeons, 6 Mud Puppies, 25 Shiners, 25 Rudd, 12 Catfish. Total, 257 specimens, 18 species.
- NEW YORK CONSERVATION COMMISSION, New York City:  
30 undersized Lobsters.
- NEW YORK CONSERVATION COMMISSION, Cold Spring Harbor, N. Y.:  
25 Brook Trout, 25 Rainbow Trout.
- NEW YORK ZOOLOGICAL SOCIETY, New York City:  
6 giant Jewfish, 4 Scamp, 1 Blue Parrotfish, 3 Green Parrotfish, 4 Rainbow Parrotfish, 11 Yellow-Finned Groupers, 4 Black Groupers, 8 Nassau Groupers, 9 Black Angel-Fish, 3 Blue Angel-Fish, 5 Red Groupers, 4 Spade-Fish, 9 Gray Snappers, 1 Red Snapper, 10 Spot-Snappers, 8 Lane-Snappers, 10 Margates, 2 Red Hinds, 12 Rock Hinds, 22 White Grunts, 1 Yellow Grunt, 11 Blue Striped Grunts, 47 Pork-Fish, 4 Yellowtails, 19 Mutton-Fish, 1 Bream, 6 Schoolmasters, 1 Ocean Turbot, 13 Trigger-Fish, 1 Soap Fish, 2 Croakers, 1 Snook, 3 Rock-Fish, 4 Squirrel-Fish, 2 Cow-Fish, 4 Buffalo Trunk-Fish, 2 Trunk-Fish, 2 Salmon Rock-Fish, 2 File-Fish, 1 Chubb, 2 Scorpion-Fish, 1 Surgeon-Fish, 85 Puffers, 17 Star-Fish, 3 Butterfly-Fish, 7 Red Hog-Fish, 35 Porgies, 36 Spiny Lobsters, 98 Sea Robins, 18 Anglers, 156 Eel Pouts, 55 Sea Ravens, 166 Skates, 35 Cunners, 41 Prickley Skates, 12 Barndoor Skates,

1 Shad, 4 Whiting, 2 Lamprey Eels, 58 Sculpins, 4 Flounders, 2 Shark Suckers, 42 Black-Fish, 5 Slimy Toad-Fish, 2 Weak-Fish, 10 Drum-Fish, 12 Cod, 12 Lobsters, 3 Loggerhead Turtles, 2 Hawksbill Turtles, 6 Hermit Crabs, 23 Land Crabs, 2 Menhaden, 5 Herring, 279 Sea Horses, 1 King Crab, 3 Conch, 58 Orange File-Fish, 155 Dog-Fish, 15 Sand Sharks, 7 Natica, 3 Neptune's Ruffles, 2 Conger Eels, 24 Sea Bass, 28 Hake, 8 Spider Crabs, 2 Blue Crabs, 4 Pilot-Fish, 1 Sea Anemone, 6 Red Sponges, 1 string of Whelk Eggs, collection of Lebia, collection of Minnows, collection of Bass Chubb, 19 pieces of rock with life attached, 31 groups of Mussels, 4 specimens of Coral, 7 Rock Crabs, 2 large Sturgeons, 30 Yellow Perch, 30 Shiners, 40 Pickerel, 45 Sun-Fish, quantity of Yellow Perch Spawn, 24 Crocodiles, 1 Giant Salamander, 24 Geographic Turtles, 24 Mud Puppies, 3 Giant Alligator Snapping Turtles, 13 Bullfrogs, 4 Slider Terrapin. 2,133 specimens.

NYE, MR. JOSEPH, New Bedford, Mass.:

7 large Porpoises.

OGLIBY, MRS. H. B., New York City:

Small Alligator.

PARADISE BROOK TROUT COMPANY, Henryville, Pa.:

33 Brook Trout (large).

PATTON, MR. F. L., JR., New York City:

Goldfish.

POLLAK, MISS CATHERINE, New York City:

Small Alligator.

PRATT, MR. CECIL, Jersey City, N. J.:

3 Painted Turtles.

RIKEL, CAPT. CHARLES E., Sheepshead Bay, Long Island, N. Y.:

Spiny Box-Fish.

ROGERS, MR. E. L., Brooklyn, N. Y.:

Sea Horse.

ROOK, MR. F. S., New York City:

2 Diamond Back Terrapins.

RUGEN, MR. HENRY, New York City:

Box Turtle.

RUNYON, CAPT. ALBERT, Belford, N. J.:

Loggerhead Turtle.

SCHUTZ, MR. W., New York City:

Young Shark Sucker.

SHANROY, MR. N., New York City:

Musk Turtle.

SMITH, CAPT., S.S. "Cape Cod," Battery Park, New York City:

2 Prickley Skates, 4 Blackfish, 11 Skates, 2 Sea-Ravens, 12 Cunners, 4 Pilot-Fish, 1 Mutton-Fish, 2 Sea-Robins, 5 Dog-Fish, 6 Puffers. Total, 49; 10 species.

SMITH, MR. GUSTAV, New York City:

Large Sea Horse.

SMITH, MR. WALTER T., New York City:

Large Green Turtle weighing 300 pounds.

SNYDER, MR. E. J., Rockaway Beach, New York City:

Small Alligator.

SOUTHSIDE SPORTSMEN'S CLUB (through Mr. George P. Slade, President), Oakdale, L. I.:

36 Adult Brook Trout, quantity of Brook Trout Eggs.

STICHURII, MR. CHARLES C. A., New York City:

3 small Alligators.

STUART, MASTER LYMAN K., Newark, N. Y.:

9 Yellow-Bellied Sliders, 3 Painted Turtles, 11 Soft-Shelled Turtles.



- STUYVESANT, MR. LOUIS, Allamuchy, N. J.:  
Bullfrog.
- SYLVESTER, MR. C. W., Brooklyn, N. Y.:  
Small Alligator.
- TAIT, MISS, Jersey City, N. J.:  
Small Snapping Turtle.
- TAYLOR, CAPT., Holly Beach, N. J.:  
Bottle-Nose Porpoise.
- TROWBRIDGE, MR. E. W., West Orange, N. J.:  
2 small Alligators.
- TRULLER, MR. BRUNO, New York City:  
Small Loggerhead Turtle.
- TUXEDO CLUB (through Mr. Edwin C. Kent), Tuxedo, New York:  
10,000 Steelhead Trout Eggs.
- UKRAINCZKY, MR. MARVIN, Brooklyn, N. Y.:  
3 Painted Turtles.
- UNITED STATES BUREAU OF FISHERIES, Washington, D. C.:  
10,000 Brook Trout Eggs, 2,000 Quinnot Salmon Eggs, 10,000 Rainbow Trout Eggs, 500,000 White-Fish Eggs, 2,500 Silver Salmon Eggs, 1,000 Land-Locked Salmon Eggs, 250,000 Smelt Eggs, 1,000,000 Pike Perch Eggs, 1,000,000 Yellow Perch Eggs, 25,000 Black Spotted Trout Eggs. Total number of Fish Eggs received, 2,800,500.
- WAGONER, MR. C., Brooklyn, N. Y. C.:  
Sea Horse.
- WEIL, MR. LEON J., New York City:  
Small Painted Turtle.
- WHITLOCK, MASTER HOWARD, Brooklyn, N. Y. C.:  
2 small Alligators.

### Gifts to the Aquarium Library

- AMERICAN MUSEUM OF NATURAL HISTORY, New York City:  
Annual Report and Journals.
- BROOKLYN INSTITUTE OF ARTS AND SCIENCES, Brooklyn, N. Y. C.:  
Annual Report and "Museum News."
- BUREAU OF FISHERIES (through Hon. George M. Bowers, Commissioner), Washington, D. C.:  
Reports and Bulletins for 1912.
- DENYSE, MR. W. I., Gravesend Beach, Long Island, N. Y.:  
"Superior Fishing," by Robert B. Roosevelt.
- ILLINOIS STATE LABORATORIES OF NATURAL HISTORY (through Dr. S. A. Forbes, Director), Urbana, Illinois:  
Publications for 1912.
- JENNINGS, MR. G. E., New York City:  
The Fishing Gazette.
- MAYER, DR. A. G., Director Marine Biological Laboratory, Dry Tortugas, Fla.:  
"Ctenophores of the Atlantic Coast of North America."
- NEW YORK FOREST, FISH AND GAME COMMISSION (through Hon. H. Leroy Austin, Commissioner), Albany, N. Y.:  
Sixteenth Annual Report of the New York Forest, Fish and Game Commission.
- OSBURN, DR. RAYMOND C., Assistant Director, New York Aquarium, New York City:  
"Bryozoa of the Woods Hole Region."
- SHUFELDT, DR. R. W., Washington, D. C.:  
Pamphlet on *Pterycombus brama*.
- SMITH, DR. BERTRAM G., New York City:  
Six pamphlets on Salamanders.

SMITHSONIAN INSTITUTION (through Dr. C. D. Wolcott, Secretary), Washington, D. C.:

Ten volumes Harriman Alaska Expedition.

Reports and publications for 1912.

TOWNSEND, DR. CHARLES H., Director, New York Aquarium, New York City:

"Fisheries of the United States and Canadian Boundary."

WINGATE, MR. HAROLD, New York City:

Proceedings of the Philadelphia Academy of Natural Sciences.

### Exchanges

BERMUDA BOARD OF TRADE, Bermuda:

3 common Trigger-Fish in exchange for use of cans.

DETROIT AQUARIUM, Detroit, Mich.:

30 Mud Puppies, 24 Rock Bass, 8 Common Suckers, 3 White Perch, 14 Pike Perch, 15 Yellow Perch, 4 Red Horse Suckers. Total, 98.

LEE, MR. TENANT, Boston, Mass.:

1 Surinam Toad in exchange for 1 Chanchito and two Yellow Perch.

CHARTER  
OF THE  
NEW YORK ZOOLOGICAL SOCIETY

CHAPTER 435, LAWS OF 1895.

AN ACT to incorporate the New York Zoological Society and to provide for the establishment of a zoological garden in the city of New York.

As amended by Chapter 146 of the Laws of 1902; and by Chapter 240 of the Laws of 1910.

See Chapter 432 of the Laws of 1900.

See Charter of the City of New York, Section 626 of the Laws of 1901.

*The People of the State of New York, represented in Senate and Assembly, do enact as follows:*

SECTION 1. Charles A. Dana, Oswald Ottendorfer, Andrew H. Green, William H. Webb, Henry H. Cook, Samuel D. Babcock, Charles R. Miller, George G. Haven, J. Hampden Robb, Frederick W. DeVoe, J. Seaver Page, Rush C. Hawkins, David James King, Wager Swayne, Charles A. Peabody, Jr., Charles E. Whitehead, Charles R. Flint, Samuel Parsons, Jr., Mornay Williams, Henry E. Gregory, Isaac W. Maclay, Isaac Rosenwald, Hugh N. Camp, Andrew D. Parker, Cornelius Van Cott, William F. Havenmeyer, Frederick Shonnard, William W. Thompson, Alexander Hadden, Edward L. Owen, John H. Starin, Rush S. Huidekoper, William W. Goodrich, Albert H. Gallatin, Frederick S. Church, Edward C. Spitzka, Robert L. Niles, Madison Grant, C. Grant La Farge, William Van Valkenburg, and such other persons as may, under the provisions of its by-laws, become members of the corporation hereby created, are hereby created a body corporate and politic, by and under the name of the New York Zoological Society.

SEC. 2. Said corporation shall have power to establish, maintain and control zoological parks, gardens, or other collections for the promotion of zoology and kindred subjects, and for the instruction and recreation of the people. Said corporation may collect, hold, and expend funds for zoological research and publication, for the protection of wild animal life, and for kindred purposes, and may promote, form, and co-operate with other associations with similar purposes, and may purchase, sell, or exchange animals, plants, and specimens appropriate to the objects for which it was created.

SEC. 3. The managers of said corporation shall have power to make and adopt by-laws for the management and government of its affairs and business, for the admission, suspension, and expulsion of its members, and for the terms and conditions of membership; to prescribe the number and mode of election of its officers; to define their duties; to provide for the safe-keeping of its property, and from time to time to alter and modify its by-laws.

SEC. 4. The affairs and business of said corporation shall be managed and controlled by a board of managers, the number of whom shall be prescribed by the by-laws. The first board of managers shall be divided by lot into three classes, equal in number, one of which classes shall hold office for one year, another for two years, and the other for three years; and all persons elected to be managers at any subsequent election shall hold office for three years, and until others are elected in their stead. There shall be a president, two vice-presidents, treasurer and secretary, to be elected by the board of managers annually, who shall hold office until others are elected in their stead. The first meeting under

this act may be held at any time upon a notice of five days, signed by any five of the incorporators named in the first section of this act, fixing a time and place for such meeting, a copy whereof shall be mailed to each of said incorporators at his usual post-office address, and twelve of such incorporators shall be a quorum for the purpose of organization, adoption of by-laws, and election of officers. No manager of said corporation shall be interested, directly or indirectly, in any contract concerning its property or affairs.

SEC. 5. Said corporation may raise money by the issue of its bonds, secured by a mortgage on any or all of its property not acquired from said city or state.

SEC. 6. Said corporation may take, purchase, and hold real and personal estate necessary for the purpose of its incorporation, and shall possess the general powers and be subject to the restrictions and liabilities prescribed in Article two of Chapter 23 of the Consolidated Laws entitled "General Corporation Law," being chapter 28 of the Laws of 1909.

SEC. 7. The commissioners of the sinking fund of the said city are authorized in their discretion to allot, set apart, and appropriate for the use of said corporation, any of the lands belonging to said city north of One Hundred and Fifty-fifth street, but not in the Central Park, and such appropriation may be revoked if, after the expiration of five years from the passage of the act, a zoological garden is not established thereon; said grounds thus set apart and appropriated shall be used for no purpose whatsoever except those aforesaid. As soon as any lands are set apart the Mayor of the said city of New York, and the President of the Department of Parks of said city, shall become and be ex-officio members of the board of managers of said corporation. If at any time the animals now composing the menagerie at Central Park shall be removed therefrom by the authorities having charge thereof, said authorities may make an arrangement with the incorporators named in this act or the corporation formed by them for leasing or sale of such animals to such incorporators or corporation, and said incorporators or corporation shall have a preference over any other person or corporation in respect thereto upon the same terms which said authorities could make with any such other person or corporation, or upon such other terms as to such authorities may seem proper, but nothing herein provided shall be construed as giving the commissioners of the Department of Public Parks authority to sell, lease, transfer, or in any other wise dispose of said animals or other property connected with or belonging to said menagerie.

SEC. 8. Admission to the said gardens shall be free to the public for at least four days, one of which shall be Sunday, in each week, subject to such rules and regulations as shall be prescribed by said corporation.

SEC. 9. This act shall take effect immediately.

## NEW YORK ZOOLOGICAL SOCIETY

AND THE

## NEW YORK AQUARIUM

### CHAPTER 441. LAWS OF 1902.

AN ACT to authorize a further appropriation to the New York Zoological Society, for the support of the New York Aquarium.

As amended by Chapter 239 of the Laws of 1910.

*The People of the State of New York, represented in Senate and Assembly, do enact as follows:*

Chapter four hundred and forty-one of the laws of nineteen hundred and two, entitled "An act to authorize a further appropriation to the New York Zoological Society for the support of the New York Aquarium," is hereby amended to read as follows:

SECTION 1. The Board of Estimate and Apportionment of the City of New York may annually, in its discretion, include in the budget for the then next ensuing financial year, in addition to any sum or sums which may be appropriated for the adequate support and maintenance of the New York Zoological Park or gardens, situated in the borough of the Bronx, and administered and controlled by the New York Zoological Society, a further sum or sums, in its discretion, for the use of the said New York Zoological Society, provided, however, that the additional appropriation hereby authorized shall be made only in case an agreement is entered into between the said New York Zoological Society and the city of New York, acting by its Board of Estimate and Apportionment for the adequate keeping, maintenance, extension, preservation and exhibition of the building and approaches thereto and collection of aquatic animals and plants contained therein, known as the New York Aquarium, situated in the Battery park in the Borough of Manhattan in said city, and also for furnishing opportunities for study, research and publication in connection with said collections, which contract the said Board of Estimate and Apportionment is hereby expressly authorized, in its discretion, to make upon such terms and conditions as may be agreed upon with the said New York Zoological Society, and which contract shall also provide how the duty of the commissioner of parks for the boroughs of Manhattan and Richmond in respect to maintaining the said aquarium now imposed upon him by law shall be performed.

SEC. 2. This act shall take effect immediately.

BY-LAWS  
OF THE  
NEW YORK ZOOLOGICAL SOCIETY  
AMENDED TO JAN. 21, 1913.

ARTICLE I.

MEETINGS OF THE SOCIETY.

SECTION 1. The office and place of business of the New York Zoological Society shall be in the City of New York, unless otherwise ordered.

SEC. 2. The Society shall hold its annual meeting for the election of Managers, and other business, on the second Tuesday of January, or such day thereafter during the month of January to which said annual meeting shall adjourn.

SEC. 3. Special meetings of the Society shall be called by the Secretary, upon the request of the President or the Chairman of the Executive Committee, or at the written request of ten members.

SEC. 4. Notices of all meetings shall be mailed to each member of the Society at least three days before such meeting.

SEC. 5. At meetings of the Society twenty members shall constitute a quorum.

SEC. 6. The order of business shall be as follows:

1. Roll Call.
2. Reading of minutes not previously read.
3. Report of Executive Committee.
4. Report of Secretary.
5. Report of Treasurer.
6. Report of the Director of the Zoological Park.
7. Report of Director of the Aquarium.
8. Election of Managers.
9. Communications.
10. Miscellaneous business.
11. Reports and resolutions.

ARTICLE II.

BOARD OF MANAGERS.

SEC. 1. The Board of Managers shall consist of thirty-six members, together with the Mayor of New York and President of the Park Board, or Commissioner for the Bronx, who shall be members *ex-officio* of the Board.

SEC. 2. Nineteen Managers shall constitute a quorum, but ten Managers may transact current business, and adjourn, subject to the subsequent approval of a meeting at which a quorum shall be present.

SEC. 3. The Board of Managers shall hold an annual meeting on the third Tuesday of January, or on such day thereafter to which said annual meeting shall adjourn. Regular meetings of the Board may also be called by the Secretary on the third Tuesdays of October and April upon the request of the President or Chairman of the Executive Committee. Special meetings of the Board shall be called at any time by the Secretary, upon the request of the President or Chairman of the Executive Committee, or at the written request of five Managers.

SEC. 4. Notices of meetings of the Board shall be mailed to each Manager at least three days before such meetings.

SEC. 5. The successors to the outgoing class of Managers shall be elected by the Society at its annual meeting, but vacancies in the board may be filled for the unexpired term by the Board of Managers, or by the Executive Committee.

SEC. 6. A Nominating Committee shall be annually appointed by the Executive Committee, and shall consist of three members of the Society at large, who shall nominate and post ten days before the annual election the names of twelve persons to succeed the outgoing class of Managers in a conspicuous place in the office of the Society.

SEC. 7. No person shall be eligible for election to the Board of Managers, except to fill vacancies, unless his name shall have been posted as a candidate by such committee, or by not less than ten members, in writing, in a conspicuous place in the office of the Society ten days before the annual election. All candidates for election as Managers must be Life Members, Patrons, Associate Founders, or Founders of the Society.

SEC. 8. Any Manager who shall fail to attend three consecutive meetings of the Board, unless excused by a vote of the Board, shall cease to be a Manager.

SEC. 9. The Board of Managers shall at its annual meeting elect a President, two Vice-Presidents, a Secretary, and Treasurer, who shall hold office for one year, or until their successors are elected. The President, Vice-Presidents, and Treasurer shall be members of the Board.

SEC. 10. The Director of the Zoological Park, the Director of the Aquarium, and all other persons employed by the Society, shall be appointed by the Board or by the Executive Committee, and shall hold office during the pleasure of the Board.

SEC. 11. The Board shall, at its annual meeting, elect an Executive Committee and Auditing Committee, which shall hold office for one year, or until their successors are elected. The Board of Managers and the Executive Committee shall also have authority to appoint such other Committees or officers as they may at any time deem desirable, and to delegate to them such powers as may be necessary.

SEC. 12. The order of business of the meetings of the Board shall be as follows:

1. Roll Call.
2. Reading of minutes not previously read.
3. Report of Executive Committee.
4. Report of Secretary.
5. Report of Treasurer.
6. Report of Auditing Committee.
7. Report of Director of Zoological Park.
8. Report of the Director of the Aquarium.
9. Election of Officers.
10. Election of Committees.
11. Election of new members.
12. Communications.
13. Miscellaneous business.

SEC. 13. All reports and resolutions shall be in writing, and the ayes and nays may be called on any resolution at the request of one Manager.

SEC. 14. Whenever the funds of the Society shall permit, the Board of Managers or the Executive Committee may award medals or other prizes for meritorious work connected with the objects of the Society.

### ARTICLE III.

#### OFFICERS.

SEC. 1. The officers of the Society shall consist of a President, two Vice-Presidents, a Treasurer, a Secretary, and a Director of the Zoological Park. These Officers, with the exception of the Director, shall be elected at the annual meeting of the Board of Managers, but any vacancy may be filled for an unexpired term by the Board of Managers, or by the Executive Committee, until the next annual election.

SEC. 2. The President shall preside at all meetings of the Board and of the Society, and shall be *ex-officio* a member of the Executive and Auditing Committees.

SEC. 3. The Vice-Presidents shall, in the absence of the President, perform his duties and possess his powers, acting in the order of their election.

SEC. 4. The Treasurer shall receive, collect and hold, subject to the order of the Board of Managers, or the Executive Committee, all dues, subscriptions, warrants from the City, fees and securities. He shall pay all bills as ordered by the Board of Managers or the Executive Committee, and shall report to the Society at its annual meeting, and to the Board of Managers at all regular meetings, and to the Executive Committee at each meeting. He shall keep all moneys and securities in some bank or trust company to be approved by the Board of Managers or Executive Committee. The books of the Society shall at all times be open to the inspection of the Managers.

SEC. 5. The Secretary shall be a salaried officer of the Society. He shall be present, unless otherwise relieved by the Board or Executive Committee, at all meetings of the Society, of the Board, and of the Standing Committees. He shall keep a careful record of all proceedings, shall have the custody of the seal, archives and books, other than books of account, and shall conduct the correspondence of the Society. He shall issue all notices and tickets, and shall perform such other duties as the Board may direct. He shall be a member *ex-officio* of the Executive, Aquarium, and Auditing Committees, and of the Scientific Council.

SEC. 6. The Director of the Zoological Park shall be elected annually by the Executive Committee at a salary to be determined by said Committee, and shall hold office until removed or his successor chosen by said Committee. He shall be the responsible administrative officer of the Park, and shall recommend to the Executive Committee candidates for the various positions in the Park. He shall also perform all such other duties in connection with the business, scientific, and literary administration of the Society as may be assigned to him by the Executive Committee.

SEC. 7. The Director of the Aquarium shall be elected annually by the Executive Committee and shall hold office until removed or his successor is chosen by said Committee. He shall be the responsible administrative officer of the Aquarium, and shall recommend to the Executive Committee all candidates for positions in the Aquarium. The director of the Aquarium shall be *ex-officio* a member and Chairman of the Aquarium Committee. He shall perform such other duties in connection with the Aquarium as may be assigned to him by the Executive Committee.



## ARTICLE IV.

## COMMITTEES.

SEC. 1. There shall be two standing committees, the Executive Committee and the Auditing Committee, which shall hold office for one year or until their successors are elected.

SEC. 2. The Executive Committee shall consist of seven Managers, together with the President and Secretary of the Society *ex-officio*. Four members shall constitute a quorum, and all meetings shall be called by the Chairman. The Executive Committee shall fill all vacancies in its own number and shall have the full powers of the Board of Managers, except so far as such delegation of power may be contrary to law.

SEC. 3. The Executive Committee shall have the control and regulation of the collections, library, and all other property of the Society, and shall have power to purchase, sell, and exchange specimens and books, to employ and control all officials and employees of the Society, Park, and Aquarium, and generally to carry out in detail the directions of the Board of Managers and the terms of any contract between the City, or Park Board, and the Society.

SEC. 4. All the rules and regulations for the examination of applicants for the various positions in the Park and Aquarium shall be made or approved by the Executive Committee.

SEC. 5. The Executive Committee may regulate the auditing and payment for all current accounts.

SEC. 6. The Executive Committee shall annually appoint an Aquarium Committee, whose duties and powers are set forth in Section 11 of Article IV of these By-Laws.

SEC. 7. The Executive Committee shall annually appoint a Nominating Committee, whose duties and powers are set forth in Sections 6 and 7, Article II, of these By-Laws.

SEC. 8. It shall also appoint a Scientific Council, whose powers and duties are set forth in Section 2 of Article V of these By-Laws.

SEC. 9. The Committee shall make a written report at each regular meeting of the Board of Managers.

SEC. 10. The Auditing Committee shall consist of three regular members of the Society, in addition to the President and Secretary, members *ex-officio*, and vacancies shall be filled by the Executive Committee. It shall be the duty of the Auditing Committee to audit, annually, the accounts of the Treasurer, of the Director of the Zoological Park, and of the Director of the Aquarium, and any other accounts of the Society, and shall report to the Board of Managers at its annual meeting.

SEC. 11. The Executive Committee shall annually appoint an Aquarium Committee, not to exceed eight members of this Society, who shall hold office until their successors are chosen. All vacancies shall be filled by the Executive Committee. The Director of the Aquarium shall be *ex-officio* a member and the Chairman of the Aquarium Committee, and such Committee may vest in him any or all of its powers. The Chairman of the Executive Committee and the Secretary of the Society shall also be *ex-officio* members of the Aquarium Committee. Three members shall constitute a quorum. The Executive Committee may delegate to the Aquarium Committee such powers as it may deem proper.

## ARTICLE V.

## SCIENTIFIC COUNCIL.

SEC. 1. The Executive Committee shall annually appoint a Scientific Council of not more than ten members, and shall fill all vacancies. Members of the Council shall hold office until their successors are appointed.

SEC. 2. The duties of the Council shall be to act as an advisory board in all matters pertaining to the scientific administration of the Society, and especially as to the scientific features of the Park, the promotion of zoology by publications and otherwise, and the preservation of the native fauna of America.

SEC. 3. Four members, including the Chairman, shall constitute a quorum. The Chairman shall be elected annually by the Council. The Chairman of the Executive Committee and the Secretary of the Society shall be members *ex-officio* of the Council.

## ARTICLE VI.

## MEMBERS.

SEC. 1. The present members and such others as shall become associated with them, under the conditions prescribed by the By-Laws, shall be members of this Society as long as they shall comply with the By-Laws.

SEC. 2. Members failing to comply with these By-Laws, or for other good and sufficient cause, may be expelled from the Society by the Executive Committee.

SEC. 3. Candidates for membership shall be proposed and seconded by members of the Society. The name, occupation, and place of residence of every member as proposed shall be submitted for election to the Board of Managers or the Executive Committee, and such person, when elected, shall become a member upon payment of the annual dues, or of the fees as prescribed below.

SEC. 4. There shall be a class known as Fellows, which shall consist of members of the Society who have rendered marked services to science, and shall be chosen by the Executive Committee. The privileges of Fellows shall be in all respects the same as those of regular members of the Society, but they shall be exempt from the payment of annual dues.

SEC. 5. The annual dues shall be ten dollars, payable in advance, on the first day of May of each year, but the Executive Committee may remit the dues for the current year in the case of members elected between January 1st and May 1st of each year. The classes of membership shall be as follows:

SEC. 6. The payment of \$200 at one time shall constitute any member a Life Member.

A member who has paid annual dues for a period of five years may thereafter, at any time, upon the payment of the difference between the amount of dues already paid and \$200, become a Life Member, but such payment shall be not less than \$100.

SEC. 7. The payment of \$1,000 at one time, or in the case of a Life Member, of \$800, shall constitute any member a Patron.

SEC. 8. The payment of \$2,500 at one time, or in the case of a Patron of \$1,500, or of a Life Member of \$2,300, shall constitute any member an Associate Founder.

SEC. 9. Any member who shall donate to the Society \$5,000, or property of equal value, or any Associate Founder who shall donate \$2,500, or any Patron who shall donate \$4,000, may be elected by the Board of Managers or Executive Committee a Founder.

SEC. 10. Any member who shall have donated to the Society ten thousand dollars (\$10,000), or its equivalent, may be elected by the Board of Managers or the Executive Committee a Founder in Perpetuity. Such Founder in Perpetuity shall have the power to designate by a last will and testament his successor, who shall thereupon be entitled to all the rights and privileges of the original Founder in Perpetuity, including the right of designating in turn his successor.

SEC. 11. Any member who shall have donated to the Society \$25,000, or its equivalent, may be elected by the Board of Managers, or the Executive Committee, a Benefactor. Benefactors shall have the rights and privileges of a Founder in Perpetuity.

SEC. 12. Persons who have rendered marked service in the science of zoology or natural history may be elected Honorary Members, but not more than three such Honorary Members shall be elected in any one calendar year.

SEC. 13. A resident member who shall have rendered marked scientific or professional services to the Society in any branch of its work may be elected by the Executive Committee a Life Member, Patron, Associate Founder, or Founder. A resident of New York who shall have rendered marked service in zoology or natural history may be elected by the Executive Committee a Permanent Fellow.

SEC. 14. Non-residents who communicate valuable information to the Society, or who have rendered marked service in the science of zoology or natural history, may be elected Corresponding Members.

SEC. 15. Benefactors, Founders in Perpetuity, Founders, Associate Founders, Patrons, Life Members, Honorary Members, Permanent Fellows, Fellows, and Corresponding Members shall be exempt from annual dues.

## ARTICLE VII.

### PRIVILEGES OF MEMBERS.

SEC. 1. A member's ticket admits the member and his immediate family to the Park on reserve days, and to all lectures and special exhibitions, and may be used by the member's immediate family, and shall be good for the current year.

SEC. 2. Admission tickets to the Park and Aquarium on reserve days are issued to members for distribution, and are good for the current year.

SEC. 3. Each member of the Society is entitled annually to a member's ticket and to ten admission tickets.

SEC. 4. Each member shall also receive one copy of the catalogue or handbook, the report and official publication of the Society, and shall have all the privileges of the Library and Members' Building.

SEC. 5. No member shall be entitled to the privileges enumerated in this Article unless his annual dues shall have been paid.

SEC. 6. The Life Members shall have all the privileges of members and ten additional admission tickets.

SEC. 7. Benefactors, Founders in Perpetuity, Founders, Associate Founders and Patrons shall have all the privileges of Life Members, and shall in addition receive copies of all scientific works published by the Society.

SEC. 8. Any member who shall fail to pay his annual dues within three months after the same shall have become due, and after notice of thirty days, by mail, shall cease to be a member of the Society; subject, however, to reinstatement by the Board of Managers or Executive Committee for good cause shown.

SEC. 9. Any person elected to membership who shall fail to qualify within three months after notice of his election shall be considered to have declined his election; but such term may be extended by the Board of Managers, or Executive Committee.

## ARTICLE VIII.

### FINANCES.

SEC. 1. The fiscal year of the corporation shall be the calendar year commencing January 1st and ending December 31st.

SEC. 2. Neither the Society nor any of its Managers or Officers shall contract any debt which, with existing debts, shall exceed in amount the funds then in the Treasury, except to meet expenditures for which the City is liable, and for which the Society will be reimbursed by warrants from the Comptroller's office.

## ARTICLE IX.

### AMENDMENTS.

SEC. 1. Amendments to these By-Laws may be proposed, in writing, at any meeting of the Board of Managers, and adopted by unanimous consent of the Managers present, or if such proposed amendment shall fail to receive unanimous consent, the Secretary shall, with the notices of the next meeting, send a copy of it to each Manager and state that it will be brought up for action at such meeting, when it may be passed by a majority vote.

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